



Fitness on the Run

Alumni Travel Program

1979-1980

This travel program is a special one for alumni of Harvard, Yale, Princeton, Cornell, Columbia, M.I.T., Brown, Dartmouth, Univ. of Pennsylvania and certain other distinguished universities and for members of their families. Designed for educated and intelligent travelers, it is planned for persons who might normally prefer to travel independently, visiting distant lands and regions where it is advantageous to travel as a group. The programs avoid the excessive regimentation normally associated with group travel, and are planned to include generous amounts of leisure time in the course of travel to allow for individual interests.

1979 represents the 15th year for the program. Additional new itineraries are in the planning stage as well, including the Galapagos, southern India, the People's Republic of China and other areas.

REALMS OF ANTIQUITY: Journeys into the past to explore the history and civilization of the ancient world. One itinerary of 17 days—**VALLEY OF THE NILE**—offers a comprehensive and authoritative survey of ancient Egypt. Starting with the British Museum and the Rosetta Stone, it visits the great monuments of ancient Egypt stretching along the Nile Valley from Memphis and Cairo to Abu Simbel near the border of the Sudan, including a cruise on the Nile from Luxor to Aswan. A second itinerary—**AEGEAN ADVENTURE**—covers the archeological treasures of classical antiquity in the lands of the Aegean in a journey of 23 days. It includes not only the historic sites of ancient Greece but also a rare view of ancient cities in Asia Minor, including the ruins of Troy, and in addition includes a cruise through the Aegean to Crete and other Aegean isles. A third itinerary—the **MEDITERRANEAN ODYSSEY**—is a 22-day journey which follows the spread of classical antiquity into the western Mediterranean: the splendid ruins of the classical Greek cities of Sicily, the historic ruins of Carthage, ancient Roman cities in North Africa, and the fortress cities of medieval Crusaders on the rocky isle of Malta.



EAST AFRICA: A distinctive program of safaris, ranging in length from 16 to 32 days, to the great game-viewing areas of Kenya and Tanzania and to the beautiful islands of the Seychelles. Led by experts on East African wildlife, the itineraries are carefully planned and comprehensive, offering an unusually complete opportunity to see and photograph the wildlife of Africa.

THE SOUTH PACIFIC and EXPEDITION TO NEW GUINEA: The island continent of Australia and the islands of New Zealand are covered by the **SOUTH PACIFIC**, 28 days, unfolding a world of Maori villages, boiling geysers, fiords and snow-capped mountains, ski plane flights over glacier snows, jet boat rides, sheep ranches, penguins, the Australian "Outback," historic convict settlements and the Great Barrier Reef. The primitive and beautiful world lying slightly to the north is seen in the 24-day **EXPEDITION TO NEW GUINEA**, a rare glimpse into a vanishing world of Stone Age tribes and customs. Includes the famous Highlands of New Guinea, with Sing Sings and tribal cultural performances, and the remote villages of the Sepik River and the vast Sepik Plain, as well as the North Coast at Madang and Wewak and the beautiful volcanic island of New Britain. For both tours, optional post-tour visits can be made to other islands of the southern Pacific, such as Fiji and Tahiti.

CENTRAL ASIA AND THE HIMALAYAS: A choice of 23 or 29-day itineraries exploring the vast historic and cultural heritage of India, the untamed Northwest Frontier region of Pakistan and the remote mountain kingdom of Nepal. Includes the famed Khyber Pass, imposing Moghul forts, sculptured temples, lavish palaces, formal gardens, the teeming banks of the Ganges, snow-capped peaks of the Himalayas along the roof of the world, picturesque cities and villages, the splendor of the Taj Mahal, and hotels which once were palaces of maharajas.

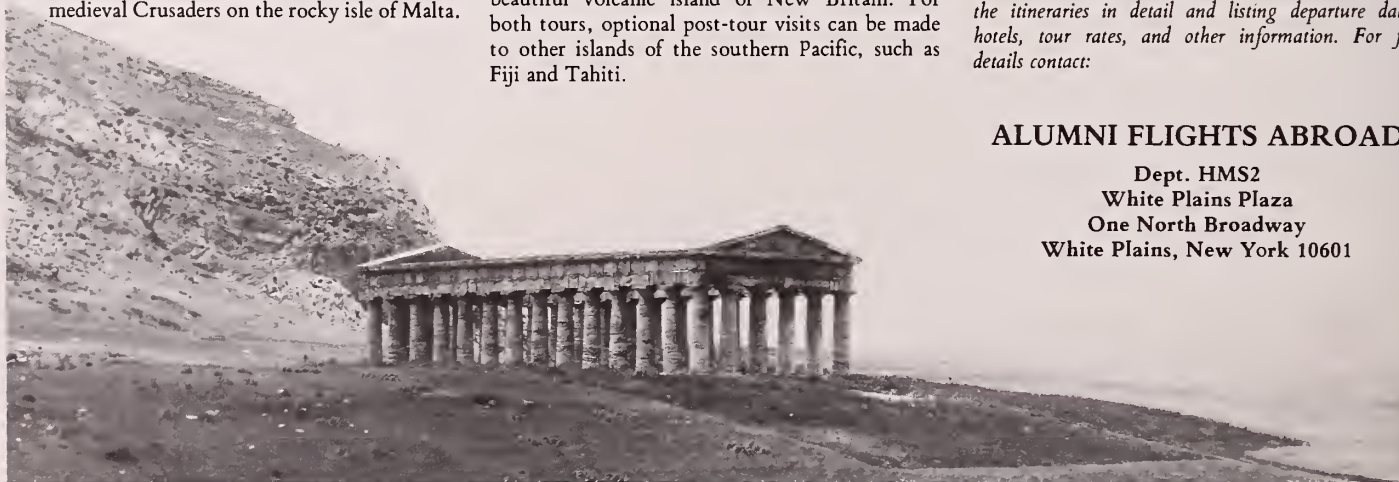
THE FAR EAST: Two itineraries which offer a fascinating insight into the lands and islands of the East. **THE ORIENT**, 29 days, is a classic tour of ancient and modern Japan, with special emphasis on the cultural treasures of Kyoto, and includes as well the important cities of Southeast Asia, from Singapore and Hong Kong to the temples and palaces of Bangkok and the island of Bali. A different and unusual perspective is offered in **BEYOND THE JAVA SEA**, 34 days, a journey through the tropics of the Far East from Manila and the island fortress of Corregidor to headhunter villages in the jungle of Borneo, the ancient civilizations of Ceylon, Batak tribal villages in Sumatra, the tropical island of Penang, and ancient temples in Java and Bali.

SOUTH AMERICA: An unusually comprehensive 28-day journey through the vast continent of South America, with dazzling pre-Columbian gold, ornate colonial churches and palaces, the ruins of the ancient Inca civilization, snow-capped peaks of the Andes, famed Iguassu Falls, the futuristic city of Brasilia, and other sights. Optional post-tour extensions are available to Manaus, in the heart of the jungle of the Amazon, and to Panama.

Prices range from \$2,215 to \$4,175 from U.S. points of departure. Air travel is on regularly scheduled flights of major airlines, utilizing reduced fares which save as much as \$600.00 and more over normal fares. Fully descriptive brochures are available, setting forth the itineraries in detail and listing departure dates, hotels, tour rates, and other information. For full details contact:

ALUMNI FLIGHTS ABROAD

Dept. HMS2
White Plains Plaza
One North Broadway
White Plains, New York 10601



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Overview

The Affiliated makes it to the top

This year's rites of spring in the Medical Area included one event that has taken most of two decades to prepare for. On April 27, the faithful fathers of the Affiliated Hospitals Center (AHC) celebrated the delivery of their often-troubled — and troubling — brainchild with a traditional topping-off ceremony at the construction site. As the crane operator stood by, ready to hoist the hospital flag, a ceremonial evergreen, and the last of 47,127 tons of concrete up to the seventeenth floor, guests heard several speakers reminisce about their participation in the project.

Bertrand Goldberg, architect for the hospital, told of the day in 1964 when he was asked — by an excessively optimistic planner — to be ready for groundbreaking ceremonies within a year. In fact it was a year plus a decade before the first shovelful of earth was turned, and work by the Turner Construction Company did not begin until December 16, 1976. The subsequent excavation of 55,000 cubic yards of soil and the expenditure of 110,000 man-days of work have culminated in what Goldberg called "a triumph of faith over facts" — a phrase which some might consider a pretty good definition of "miracle."

Certainly the fate of the AHC has not been favored by the facts of turbulent social, political, environmental, and economic changes. Since 1962, when the project was conceived during a meeting in the office of HMS Dean George Packer Berry, its course frequently has been thwarted. The Har-



Congregated to crown their achievement, speakers at the tree planting included (left to right): Harold Parmelee, local head of the Turner Construction Company, which is building the AHC; Bertrand Goldberg, architect; Richard Chapman, first chairman of the hospital building committee; Dr. William Hassan, executive vice president of the AHC; and George Macomber, current chairman of the building committee.

vard teaching hospitals involved in the venture, the Robert B. Brigham, the Peter Bent Brigham, and the two divisions of the Boston Hospital for Women, initially were recalcitrant regarding their collective involvement in a corporation which F. Stanton Deland, former president of the AHC, once described as "possessing a set of bylaws designed by lawyers to confuse the layman and assure everlasting autonomy to each of the member hospitals." In 1972, new legislation, requiring the hospital to obtain a Certifi-

cate-of-Need from the Public Health Council, provided additional complications. And the emergence of an active community consciousness among the tenants of Mission Hill (since incorporated as the Roxbury Tenants of Harvard) developed into a pressing and very sensitive issue.

Forced to respond to these pressures, the AHC has had to evolve through continual compromise and collaboration. The merger between the hospitals required almost two years of negotiations. In order to comply with

Massachusetts law, the number of beds was pared down to 680 from proposals which had been at one point as high as 848. The construction of the Mission Park Housing Development and the still controversial Medical Area Service Corporation (MASCO) power plant, the renovation of other neighborhood dwellings, the subsidization of relocation expenses for those forced by the building of the AHC to give up their homes, and the promise of a primary care facility all have occurred as a result of neighborhood activism.

Now, realistically, a final year's construction is anticipated at the AHC before the first patients can be admitted. In the meantime, however, more than one hundred people involved in several laboratories and departments already have been able to transfer to their new quarters and more are in the process of shifting their operations to the AHC. Among those that have made the move are labs in chemistry, gastroenterology, laboratory control, microbiology, electroencephalography, electromyography, pulmonary section, and the departments of pathology and endocrinology from the Peter Bent Brigham Hospital and the department of histology from the Boston Hospital for Women.

When work on the AHC is at last completed, HMS Dean Henry Meadow, in charge of planning and special projects, will undoubtedly be there for the dedication ceremonies, grinning ear to ear. He was prominent among those attending the topping-off, having provided seventeen years of continuity and leadership in Harvard's persistent efforts to establish and build the AHC.

Class of '83: Into the fray

When the 166 members of Harvard Medical School's latest edition arrived on campus in September, they had just enough time for a final, collective, very deep breath before plunging into the rigors and routines of the medical life. Even the respite of orientation seemed designed to remind anyone who still loved leisure that he or she had come to the wrong place. For five days the students followed nonstop itineraries. After a computerized registration procedure signalled their official initiation into the HMS Class of 1983, they were expected to pick and choose from among four receptions, three placement exams, two picnics, one disco, one Red Sox game, a bus tour of Boston and a walking tour of Countway Library, an introductory clinic where two cardiac patients were presented, teaching films, and meetings with faculty advisors.

Daniel Federman '53, HMS Dean for Students and Alumni/ae and chairman of the orientation program, spoke of the students' imminent transformation. He called it "a kind of alchemy, a process in which graduates of college not otherwise clearly differentiated from all the other graduates of college get turned into physicians and dentists prepared to devote their lives to taking care of people who are sick."

In his address, HMS Dean Daniel Tosteson elaborated on his apt and oft-invoked metaphor — that "medical school is not a sprint but a marathon" — in discussing the implications of the physician's responsibility to keep up with an ever-changing base of medical

knowledge. "What you will be using in the year 2000, and beyond," he said, "won't be what you have learned here. The unique and dynamic aspects of medical education demand a strategy built not on a goal of acquiring all you're going to use, but on finding a way to keep learning. Try to spend a little time thinking about 'how' to learn. It is as important as 'what' you learn while you're here."

Dean Tosteson also adjoined his new charges to stay in touch with medicine's roots in the natural and social sciences and the humanities. He stressed that every conceptual framework for learning should take three factors into account: "each patient is a living organism — exquisite in its subtlety and complexity as a biological, physical, chemical machine"; individuals are members of society and the state of their health is related to their social roles — "we help make each other more healthy and we make each other sick"; and "each person is unique. Doctors aren't priests, but increasingly in this secular world they are called on to give advice that seems more priestly than medical."



“Doctors aren’t priests, but increasingly in this secular world they are called on to give advice that seems more priestly than medical.”



Dean Tosteson and Dr. Paul at the reception for the first year class.

The twenty students matriculating this fall under the new five-year curriculum at the Harvard School of Dental Medicine also attended orientation, and their dean, Paul Goldhaber, addressed both classes. He defended the increasingly intimate relationship between the two schools. “All of these systems,” he said, “are connected: the nervous system, the cardiovascular system, the neuromuscular system.” Diseases in other parts of the body, Dr. Goldhaber said, affect the oral cavity and the health of the oral cavity affects other conditions in the body.

In his second year as director of admissions for HMS, Oglesby Paul ‘42, managed to increase the Harvard applicant pool by approximately ten percent, from 3701 to 4083 (2897 men, 1186 women), while the national pool decreased slightly. Out of this large, diverse and gifted group — the average Medical College Admissions Test score of Harvard applicants was 9.37, compared to an overall national average of 7.8 — some 918 candidates were interviewed either in Boston or in one of several other cities. The committee on admissions ultimately selected 146 men and 69 women, of which 113 men and

53 women enrolled at HMS.

While applications from both sexes have fluctuated nominally over the past six years, the pattern of men dipped in 1975 and again in 1977; women applicants, after three years on the upswing (1974 through 1977), fell off in 1978, but then rebounded with a fifteen percent increase in 1979 for a total of 1186 applications, the all-time record.

Minority applications also rose significantly this year, surging up from 577 to 811, but the percentages of particular minorities in the Class of ‘83 — in this post-Bakke era — remain quite similar to last year’s figures: 359 blacks applied, 29 were accepted, and 19 matriculated; for Chicanos the ratio was 93:5:4, for mainland Puerto Ricans, 41:5:4, for American Indians and Alaskans, 21:0:0, and for Orientals, 297:8:4. The pool of black applicants this year was fifty percent larger than in 1978, when 239 applied, and virtually matched a previous high of 350 applicants in 1977. Similarly, the Chicano pool returned this year to its 1977 level after a considerable drop — to 57 — in 1978.

A slightly larger percentage of the

faculty children who applied this year were accepted (four of fourteen, 28.5 percent), but a smaller proportion of alumni/ae offspring, four out of thirty-three, or 12.1 percent, were admitted. Last year’s percentages for the two groups were 22 and 17.6, respectively. For the second year in a row, all of the students in these categories who were accepted decided to attend HMS.

In the Class of ‘83 the largest numbers of students come from New York (30), Massachusetts (18), California (14), New Jersey (13), and Pennsylvania (10). The following schools have the biggest representation in the class: Harvard/Radcliffe with 41, Yale with 13, Stanford with 10, MIT with 8, and Dartmouth with 7. Columbia, the University of California at Berkeley, Johns Hopkins, and Princeton each contributed 4 students.

In the conclusion of his welcoming address, Dean Tosteson expressed the hope that these newest medical and dental students would each develop “a lasting and effective style of learning,” so that when, a few years hence, they leave the Medical Area, they would depart “dedicated to the lifelong effort to learn.”

Class of 1983

Anderson, James M.
Scotia, NY (Yale)

Anderson, Warren H., Jr.
Princeton, NJ (Stanford)

Andujar, Edward M.
Vineland, NJ (Haverford)

Bachman, David T.
Wellsboro, Pa. (Dartmouth)

Baginsky, Peter R.
Waban, Mass. (Harvard)

Barnett, Faith H.
Providence, RI (Harvard)

Bartzokis, Thomas C.
Needham, Mass. (Harvard)

Becker, Donna R.
Glendale, Calif. (Univ. of Southern California)

Becker, Pamela S.
Westfield, NJ (Harvard)

Berdick, Thomas E.
Philadelphia, Pa. (Drexel)

Blacker, Deborah L.
San Jose, Calif. (Stanford)

Bloch, Donald B.
Chestnut Hill, Mass. (Harvard)

Bodenstein, Lawrence E.
Wantagh, NY (Johns Hopkins)

Bond, Annette L.
St. Croix, US Virgin Islands (Yale)

Brodsky, Frances M.
Princeton, NJ (Harvard)

Bromfield, Edward B.
Milton, Mass. (Harvard)

Brown, Emery N.
Ocala, Fla. (Harvard)

Bugella, Brian R.
Chetek, Wisc. (Univ. of Wisconsin, Eau Claire)

Burrus, Lisa C.
Brooklyn, NY (Harvard)

Burton, Melissa M.
Seattle, Wash. (Stanford)

Calkins, Hugh G.
Hamburg, NY (Williams)

Canning, William M.
Babylon, NY (Harvard)

Chanock, Stephen J.
Bethesda, Md. (Princeton)

Chaska, Benjamin W.
Beach, ND (North Dakota State Univ.)

Coley, Christopher M.
West Hartford, Conn. (Yale)

Cordeiro, Peter G.
Miami Beach, Fla. (Harvard)

Cordell, Nolan K.
Tacoma, Wash. (Univ. of Washington)

Cruz, Maritza
New York, NY (City College of the City Univ. of New York)

Cullen, Kevin J.
Ridgewood, NJ (Dartmouth)

D'Andrea, Alan D.
Cranford, NJ (Harvard)

Dempsey, Michael A.
Media, Pa. (Brown)

de Schweinitz, Elizabeth
Peru, Vt. (Wesleyan)

Ditmar, Mark F.
Pittsfield, Mass. (Dartmouth)

Dooley, Kevin F.
Redondo Beach, Calif. (Colorado College)

Dougall, Christopher R.
Portland, Ore. (Harvard)

Downey, Joan C.
Coral Gables, Fla. (Boston Univ.)

Drebin, Jeffrey A.
Evanston, Ill. (Oberlin)

Drews, Reed E.
Louisville, Ky. (Yale)

Durham, Samuel J.
Haute Volta, West Africa (Emory)

Edelman, Elazer R.
Brookline, Mass. (MIT)

Eig, Blair M.
Gaithersburg, Md. (Brandeis)

Elmer, Edward B.
Andover, Mass. (Johns Hopkins)

Ely, Robert L.
Montclair, NJ (Harvard)

Engel, Stephanie
Cambridge, Mass. (Harvard)

Epstein, Nathaniel B.
Baldwin, NY (MIT)

Fang, Ferric C.
Tarzana, Calif. (Harvard)

Fay, Linda A.
Danvers, Mass. (Univ. of Massachusetts, Boston)

Feldmann, Edward
Ft. Lauderdale, Fla. (Cornell)

Figge, James J.
St. Paul, Minn. (College of St. Thomas)

Finkel, Toren
Silver Spring, Md. (Univ. of Maryland)

Finkowski, Jayne P.
Hatfield, Mass. (Smith)

First, Kenneth R.
Merion, Pa. (Harvard)

Fleming, Lora E.
Boston, Mass. (Harvard)

Forman, Bruce H.
Havertown, Pa. (Muhlenberg)

Forrow, B. Lachlan
Greenwich, Conn. (Princeton)

Fraker, Douglas L.
Brookfield, Wisc. (Univ. of Wisconsin)

Friedman, Alan D.
Moraga, Calif. (Univ. of California, Berkeley)

Frissora, Henry A.
Mendham, NJ (Purdue)

Gabuzda, Dana H.
Bala Cynwyd, Pa. (Bryn Mawr)

Gaudio, Frank E.
Monessen, Pa. (Harvard)

Geismar, Deborah
Highland Park, NJ (Harvard)

Geller, Robert B.
Cincinnati, Ohio (MIT)

Gimple, Lawrence W.
Wilmington, NC (Univ. of North Carolina, Chapel Hill)

Gladstone, Norma J.
Indianapolis, Ind. (Washington Univ.)

Glaser, Thomas M.
Houston, Texas (Stanford)

Godley, Paul A.
Detroit, Mich. (Yale)

Goldberg, Marcia B.
Brookline, Mass. (Harvard)

Golub, Howard L.
Rosedale, NY (Univ. of Virginia)

Gordon, Gilad S.
Reston, Va. (Harvard)

Grill, Howard P.
Union, NJ (Johns Hopkins)

Guay, Lisa Marie
Walpole, Mass. (College of the Holy Cross)

Hamburg, Margaret A.
Washington, D.C. (Harvard)

Hamilton, Audrey M.
Brooklyn, NY (City College of the City Univ.
of New York)

Harris, Hobart W.
Flint, Mich. (Harvard)

Haupt, Richard M.
Wharton, NJ (Univ. of Maryland)

Haydock, G. Sherrard
Weston, Mass. (Middlebury)

Hernandez, Zaida
Bronx, NY (Harvard)

Herrera, Carlos R.
Houston, Texas (Rice)

Hickle, Randall S.
Hilton Head, SC (Univ. of Texas, Austin)

Hoagland, Mary C.
Denver, Colo. (Yale)

Holcombe, John W.
Alexandria, Va. (Harvard)

Hupp, Jon A.
Aurora, Ill. (Stanford)

Ishizue, Kenneth K.
Dinuba, Calif. (Univ. of California, Irvine)

Jackson, Bernice D.
Baton Rouge, La. (Tougaloo)

Jackson, Pamela L.
Houston, Texas (Harvard)

Jones, Ronald C.
Seattle, Wash. (Univ. of Washington)

Karzel, Ronald P., Jr.
Janesville, Wisc. (Yale)

Keller, David M.
Southport, Conn. (Princeton)

Klein, Steven C.
Princeton, NJ (Harvard)

Kleinman, Elissa C.
Dobbs Ferry, NY (Harvard)

Konchan, Donald F.
Brooklyn, NY (Columbia)

Kronish, Jan W.
North Bellmore, NY (MIT)

Lawrence, Willie E., Jr.
Cleveland, Ohio (Harvard)

Leavitt, Andrew D.
Flint, Mich. (Univ. of Michigan)

Lebwohl, Nathan H.
New York, NY (Columbia)

Lennox, Sara L.
Dorchester, Mass. (Brandeis)

Leone, Barbara A.
St. Paul, Minn. (Univ. of Minnesota)

Lichter, Susan L.
Riverdale, NY (Mount Holyoke)

Long, John P., Jr.
Arlington, Mass. (Dartmouth)

Lopez, Pedro M.
Corpus Christi, Texas (Yale)

Lowenstein, Daniel H.
Princeton, NJ (Univ. of Colorado)

Lowry, Blanche A.
Mound Bayou, Miss. (Tougaloo)

Macklis, Jeffrey D.
Phoenixville, Pa. (MIT)

Malin, Maureen A.
Garden City, NY (Harvard)

Manning, Mary E.
Marlboro, Mass. (Northeastern)

Manning, Warren J.
Utica, NY (MIT)

Martin, David R.
Orinda, Calif. (Dartmouth)

McAlmon, Karen R.
Deer Park, NY (Stanford)

Melendez, Francisco J.
Carolina, Puerto Rico (Cornell)

Monmouth, Michael A.
Houston, Texas (Stanford)

Moore, Marcia M.
Seaford, Del. (Harvard)

Morton, David H., III
Daniels, W. Va. (Trinity)

Naini, Ali J.
Tacoma, Wash. (Johns Hopkins)

Negrin, Robert S.
Palo Alto, Calif. (Univ. of California, Berkeley)

Nethersole, Shari
Hollis, NY (Yale)

Niederhut, William E.
Denver, Colo. (Brown)

Nitzberg, Richard S.
Hollywood, Fla. (Harvard)

O'Driscoll, Deborah A.
Worcester, Mass. (Wellesley)



The courtyard of the Isabella Stewart Gardner Museum hosted one of several receptions.

O'Hara, Dorene A.
Cheshire, Conn. (Univ. of Connecticut)

Olvera, Robert
Hacienda Heights, Calif. (Univ. of California, Irvine)

Percy, Christopher A.
Madison, Wisc. (Univ. of Wisconsin, Madison)

Phillips, Theodore G.
Allentown, Pa. (Columbia)

Picus, Joel
Rockford, Ill. (Univ. of Illinois)

Rando, Thomas A.
Lewiston, Maine (Harvard)

Rawlins, Kimberly
New York, NY (Harvard)

Rexroth, Katherine
Palo Alto, Calif. (Yale)

Righi, David F.
Windsor, Vt. (Tufts)

Ringler, Jack K.
Huntington, NY (Dartmouth)

Rintels, Peter B.
Arlington, Va. (Williams)

Rivera, Carlos J.
New York, NY (Cornell)

Roiphe, Jean O.
New York, NY (Princeton)

Rosenzweig, Anthony
Great Neck, NY (Harvard)

Sachs, Peter B.
Shaker Heights, Ohio (Williams)

Salzman, Andrew L.
Weston, Mass. (Yale)

Samuels, Mary H.
Flossmoor, Ill. (Univ. of Chicago)

Sanders, Carolyn J.
Deerfield, Ill. (Stanford)

Sandrock, Alfred W., Jr.
Balboa, Canal Zone (Stanford)

Schaaf, Virginia M.
Menlo Park, Calif. (Univ. of California, Berkeley)

Schliesman, Paul J.
Westport, Conn. (Harvard)

Schweitzer, Jeffrey S.
New York, NY (Harvard)

Shakhnovich, Alexander
Elmhurst, NY (Columbia)

Shmerling, Robert H.
Nashville, Tenn. (Tufts)

Shuldiner, Alan R.
North Woodmere, NY (Lafayette)

Siegel, Lawrence C.
Shaker Heights, Ohio (MIT)

Silverman, Marcia E.
Hewlett, NY (Brandeis)

Skach, William R.
Portland, Ore. (Oregon State Univ.)

Sorscher, Eric J.
Flint, Mich. (Yale)

Stedman, W. Hansell H.
Atlanta, Ga. (MIT)

Taylor, Ann E.
Piedmont, Calif. (Univ. of California, San Diego)

Taylor, Brooks A.
Bangalore, India (Swarthmore)

Taylor, Sherry A.
Westfield, Mass. (Univ. of Massachusetts, Amherst)

Taylor, Stephanie H.
Charlottesville, Va. (Hampshire)

Taylor, Susan C.
Philadelphia, Pa. (Univ. of Pennsylvania)

Teppler, Hedy
Ocean, NJ (New York Univ.)

Thayer, Lisa A.
Cary, NC (Harvard)

Torres, Crescencio
Riverside, Calif. (Univ. of California, Riverside)

Townley, William D.
Normal, Ill. (Yale)

Virgin, Herbert W., IV
Coconut Grove, Fla. (Harvard)

Wallace, Paul W.
Los Angeles, Calif. (Univ. of California, Berkeley)

Weber, Ellen J.
New York, NY (Univ. of Pennsylvania)

Weiser, Jeffrey N.
Deerfield, Ill. (Stanford)

Wolf, Laurence R.
Short Hills, NJ (Dartmouth)

Wolk, Seth W.
Orange, Conn. (Emory)

Wong, Tse-Yin
Seattle, Wash. (Univ. of Washington)

Wood, Douglas E.
Otsego, Mich. (Harvard)

Zgrabik, Michael J.
Parma, Ohio (Notre Dame)

Kidney Transplantation

A silver anniversary of success

Scattered all over the world today are people with one thing in common — they owe their lives to medical advances that can be traced, directly or indirectly, back to a single operation performed at the Peter Bent Brigham Hospital on December 23, 1954. In a five-and-one-half hour procedure, Dr. J. Hartwell Harrison removed a kidney from Ronald Herrick, and Joseph E. Murray '43B transplanted it into the right pelvic area of Ronald's identical twin, Richard, who was suffering from end-stage renal disease. The operation worked; Richard survived for seven years before the transplanted kidney fell prey to his original disease. In the wake of this triumph more than 30,000 patients have been helped by kidney transplants, and at the Brigham, at least, the mortality rate for such procedures has declined steadily to present levels of less than two percent for patients who receive kidneys from live donors, and less than five percent for those receiving cadaver transplants. Nationally, the death rate is about fifteen percent.

After years of hopeless prognoses for renal patients, the world's first successful human kidney transplant must have provoked a few victory parties. This fall, twenty-five years later, physicians, transplant donors and recipients, and other experts in the fields of dialysis and kidney transplantation converged on Boston's Copley Plaza Hotel for a different sort of celebration. There, on September 15, they gathered for one day to address the accomplishments of the past quarter century and the prospects for the future.

Dr. Murray and John P. Merrill '42, the head physician on the multi-disciplinary team that performed the 1954 transplant, were co-chairmen of the anniversary program. Three other members also participated: Dr. Harrison, head urologist; Dr. Gustave J. Dammin, head pathologist; and Dr. Leroy D. Vandam, head anesthesiologist. Francis D. Moore '39, head of surgery at PBBH during much of the early transplantation work and medical historian of the ventures, presided at the evening banquet that concluded the birthday party.

Ronald Herrick, donor in the 1954 transplantation, and Andrew Riteris, who in 1959, on another landmark day, gave a kidney to his fraternal twin brother, John, both took part in discussion panels at the September conference. The Riteris operation was the first successful transplant between genetically different individuals, and required immunosuppressive therapy to combat the body's natural, destructive reaction to foreign tissue. That therapy involved a smaller dosage of radiation than had been tried previously — a dose so small, in fact, that even after the operation had been deemed a success, most experts felt that the 450 roentgen units used should not have been sufficient to do what clearly had been accomplished. (John Riteris had been scheduled to attend the celebration, but he died unexpectedly in August.) Nevertheless, the Riteris triumph provided a crucial impetus to further research and experimentation.

Sometime between 1984 and 2001 medical science will reach the point where transplantation is safe and effective in virtually every case. Such, at least, was the optimistic consensus at the anniversary symposium, where the participants reported on current progress that seems to be leading to that ultimate goal. Dr. Thomas E. Starzl, professor of surgery at the University of Colorado, discussed thoracic duct drainage, a "pretreatment" technique which drains the recipient's store of immune cells before transplantation, thus reducing the chances of rejection. According to Dr. Starzl, the procedure has "broad implications" for use in heart, liver, and lung grafts as well.

The increasing success rate for kidney transplantation in the 1960s and 1970s was due in large measure to the development of immunosuppressive drugs to replace the much more dangerous application of whole-body radiation. At the Boston conference, Dr. Roy Y. Calne, chairman of the department of surgery at England's University of Cambridge, spoke of one of the newest such drugs, cyclosporin-A. Soon to be tested in the United States, the drug specifically attacks the immune cells.

Charles B. Carpenter '58, HMS associate professor of medicine, outlined recent advances in tissues typing. He told his audience that researchers have begun to be able to recognize certain

genetic markers in kidney tissues. If found in the tissue of both donor and recipient, these greatly improve the likelihood of successful transplantation.

Several of the speakers and panelists were instrumental in the development of dialysis technology. Those included Dr. Willem J. Kolff, who designed and built the first artificial kidney machine while working in Nazi-occupied Holland in 1944, and Carl W. Walter '32, the surgeon-engineer who, using photographs of Dr. Kolff's prototype and steel, plastics, and electronic devices which had not been available to Kolff, was able to construct a more sophisticated apparatus.

Dr. Kolff conceded that in another twenty years "the manufacturers of artificial kidneys will have to look for something else to do," but at the same time he envisioned an unusual new role for the device he invented. He explained that the blood-cleansing process of dialysis already has been applied in the treatment of approxi-

mately one hundred mental patients suffering from schizophrenia, and the preliminary results have been encouraging. According to Dr. Kolff, dialysis may help in such cases by removing endorphins and enkephalins — considered the body's native anesthetics — from the blood stream. He and a number of colleagues believe that those chemical substances, which also seem to be involved with emotions, memory, and learning, may be the cause of some forms of schizophrenia.

At one point, just before the birthday party broke up, Dr. Dammin pulled a harmonica from his jacket and proceeded to play "La Vie En Rose." It was an appropriate choice, for even if the optimistic participants in the celebration were looking at the future of kidney transplantation and dialysis through rose-colored glasses, they could take pride in the fact that it was the depth and breadth of their accomplishments in the last twenty-five years that had tinted the lenses.



"Someday we may be able to do away with transplantation entirely," Joseph Murray '43B predicted at the anniversary colloquium. Shown in a 1954 photo of the first transplant team are (left to right): Drs. Murray, J. Hartwell Harrison, James Dealy, Gustave Dammin and John Merrill.

David Hamburg brings health policy expertise to Harvard

Reaching across four Harvard faculties — the Medical School, the School of Public Health, the Business School, and the Kennedy School of Government — a Division of Health Policy Research and Education has been established that will initiate and foster interdisciplinary research and education in health policy.

David Hamburg, M.D., president of the Institute of Medicine of the National Academy of Sciences, and former chairman of the department of psychiatry and behavioral sciences at the Stanford University School of Medicine, has been named director of the new division, and will oversee its development.

"In a career marked by distinction in teaching, writing, research, and administration, at the university and national levels, Dr. Hamburg has demonstrated a superb grasp of both science and public policy," President Derek Bok said in announcing the appointment. "He has an unusual gift for identifying the important issues, presenting them with clarity and diplomacy, and motivating and leading colleagues to work on them."

Since assuming the presidency of the Institute of Medicine in 1975, Dr. Hamburg has led the Institute into new areas; it now addresses major problems of health services, science policy, disease prevention, human resources, behavioral medicine, and international health.

At Harvard, Dr. Hamburg will suggest research initiatives, design new courses, encourage the development of university-wide resources for work in health policy, coordinate requests for studies based in Harvard-affiliated hospitals and ambulatory care centers, and offer administrative support for research and teaching in health policy. He will complete his term as president of the Institute of Medicine in the fall of 1980; during the current academic year, he will be visiting Harvard frequently to plan the program for the new division.

Dr. Hamburg already has been given formal academic appointments to two Harvard faculties, and has been

recommended for appointment to a third. At the Medical School he has been named professor of psychiatry and chairman of the Division of Human Behavior and Health Policy in the departments of psychiatry. This new unit will organize the teaching of human behavior for medical students, post-doctoral fellows, and practicing physicians, and help establish a research program in behavioral sciences. As professor of public policy at the Kennedy School of Government, Dr. Hamburg will take the lead in developing specific research and teaching on health policy and management, emphasizing the relation of health policy to other policy fields and to fundamental problems common to all policy analysis. At the School of Public Health, where Dr. Hamburg has been recommended for appointment as professor of psychiatry, it is expected that he will be active in the department of health policy and management and the department of behavioral sciences.

Dr. Hamburg will come to Harvard well-prepared to facilitate the intricacies of multidisciplinary research and education. He has been an innovator in the development of modern psychiatric research, bringing the contributions of the biological and behavioral sciences to bear on clinical problems. This work has been an important factor in the evolution of behavioral biology. As an educator at Stanford he pioneered a program which linked the basic sciences with clinical psychiatry. In addition, he helped pave the way for a unique undergraduate program in human biology, which utilized the resources of both the School of Humanities and Sciences and the School of Medicine.

Between 1968 and 1975, Dr. Hamburg established and maintained an international research center in Tanzania, where studies in behavioral biology, conducted on chimpanzees and baboons, were coordinated with laboratory investigations under his direction at Stanford. This primate research station represented an unusually successful experiment in international cooperation in the life sciences.

His formal association with Harvard began in 1977, when he became a member of the Visiting Committee of the School of Public Health. A year later, he was named to the Visiting Committee of the Medical School and the School of Dental Medicine.

Dr. Hamburg's academic appointments are expected to help Harvard make critical contributions to the field of health policy. President Bok affirmed that David Hamburg is "uniquely qualified to enhance Harvard's efforts to assess the economic, societal, and health implications of various health policy strategies, to develop new initiatives in health policy, and to train the leaders who will implement health policy in business, government, medicine, and public health."

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Edited by **Charles S. Davidson, M.D., C.M.**, William Bosworth Castle Professor of Medicine, Emeritus, Harvard University; Senior Lecturer in Medicine, Massachusetts Institute of Technology. 336 pages. \$35.00. April, 1979.

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By **Thomas F. Necheles, M.D., Ph.D.**, Chief, Pediatric Hematology/Oncology, New England Medical Center Hospitals; Professor of Pediatrics, Tufts University School of Medicine. 208 pages. Soft cover. \$14.75. January, 1979.

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Edited by **Louis Weinstein, M.D., Ph.D.**, Visiting Professor of Medicine, Harvard Medical School; Physician, Peter Bent Brigham Hospital; and **Bernard N. Fields, M.D.**, Professor of Microbiology and Molecular Genetics, Harvard Medical School; Chief, Infectious Diseases Division, Peter Bent Brigham Hospital. 348 pages. \$32.50. June 1979.

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CRITICAL CARDIAC CARE

Clinical practicability based on the extensive firsthand experience of twenty authorities is the hallmark of this volume. Care of the acute cardiac condition from acute myocardial infarction to infective endocarditis is covered intensively. Also considered is vital organ systems failure in tandem with critical cardiac illness.

Edited by **Ephraim Donoso, M.D.**, Clinical Professor of Medicine, Mount Sinai School of Medicine; Attending, Department of Medicine (Cardiology), The Mount Sinai Medical Center; and **Stafford I. Cohen, M.D.**, Associate Professor of Medicine, Harvard Medical School, Thorndike Laboratory; Director, Medical Intensive Care Unit, Beth Israel Hospital. 248 pages. Illustrated. \$28.50. June, 1979.

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Fitness on the Run

We continue to be deluged with reports about the physical exploits of all kinds of people; one might legitimately wonder if there is anything more that need be said. Obviously, we think so, and in "Fitness on the Run" we have brought together a group of authors whose encounters with the fitness fervor — both professional and personal — are compelling in their diversity.

In Europe, the pursuit of fitness is increasingly a matter of social policy. We begin this issue with an exploration by Robert Buxbaum, our guest editor, into the relevance of that research to the American habits of work and play. Nowhere is that more crucial, he believes, than right here in the Medical Area. Wishing to hear from the medical students themselves, we asked Vicki Heller '82 to act as our liaison. The comments of her classmates reveal some sports enthusiasts who came to the Medical School with great expectations which have turned out instead to be just grand illusions. Responding to the perennial problems of limited time and space for exercise, Steve Levisohn, veteran of the runners' clinic at the Massachusetts General Hospital, describes the practical application of a program designed for the workaday world.

For the interested scientist, investigation into the subject of exercise is potentially an open-ended proposition. We thought it important to at least look at the tip of that iceberg. Howard Hartley, director of the cardiac research laboratory at the MGH, presents some of the still unresolved puzzles in exercise physiology, and pinpoints the ways in which moderate exercise alters various body functions.

A unique feature of this issue of the *Alumni Bulletin* is a collection of personal vignettes concerning the physical efforts and philosophies of a number of HMS graduates. The pattern of post-graduate activity of a different group — Harvard College alumni — has been quantified by Ralph Paffenbarger in an epidemiological study now in its twentieth year. His work has had an unquestionably significant impact on medicine's view of exercise; his study is an all-too-rare example of quantitative research into the long-range effects of fitness on health. Individual exercise habits, as he makes clear, are often-times directly proportional to the level of participation in college.

For women, exposure to high-intensity athletics is a relatively new phenomenon. Young girls in the 1940s and 1950s grew up in an atmosphere inhospitable to the serious athletic aspirations of women. Niki Janus, now associate director of athletics at Harvard, describes what that was like. She has seen an institution and the individuals connected with it make the transition to programs that now give women athletes their due.

The final two pieces typify the poles of a sports medicine practice. Lyle Micheli, director of the Division of Sports Medicine at Children's Hospital Medical Center, treats both children and adults. In his article he concentrates on the trauma of injury to younger players. Carter Rowe, orthopedic surgeon at the MGH, talks about the preservation of careers in sports.

The prevailing view in these articles supports the commonly-espoused belief that exercise is good in and of it-

self. We realize there are those who are taking exception to this fiat, some of them backed by newly-compiled statistics. Despite these gainsayers, the multitudes of joggers, cyclists, swimmers and others, ad infinitum, are staunch proponents of bodies that work. Whether it is the process or the product that is savored, a sense of satisfaction may be the most valid endorsement of all.

Robert C. Buxbaum, M.D., guest editor
Deborah W. Miller, managing editor
David J. Bumke, assistant editor

Suggested Reading

Åstrand, Per-Olof. *Health and Fitness*. Woodbury, NY: Barron's, 1977.

Åstrand, Per-Olof and Rodahl Kaare. *Textbook of Work Physiology*. New York: McGraw-Hill, 1970.

Buxbaum, Robert C. and Lyle J. Micheli. *Sports for Life*. Boston: Beacon Press, 1979.

Cooper, Kenneth. *The Aerobic Way*. New York: Bantam, 1977.

Cooper, Kenneth. *The New Aerobics*. New York: Bantam, 1970.

Farquhar, John W., M.D. *The American Way of Life Need Not be Hazardous to your Health*. Stanford, California: Stanford Alumni Association, 1978.

Fixx, James E. *The Complete Book of Running*. New York: Random House, 1977.

Ulyot, Joan L. *Women's Running*. Mt. View, California: World Publications, 1976.

Zohman, Lenore. *Beyond Diet: Exercise Your Way to Fitness and Heart Health*. Bert Ford's CPC International Inc. (available from Coral Heart Association)



"And what do you do to maintain your cardiovascular fitness, Miss Holt?"

Drawing by Karen © 1979
The New Yorker Magazine, Inc.

Harvard's Health Problem

Exercising options for people with nowhere to run

It would be pleasant to report that a dependable, data-based source of information about promoting health exists, but it doesn't. The problem is that while many disparate pieces of information are available about how some people stay healthy, and how health habits affect our lives, the fact is that most of this is inferential data at best; definitive, controlled experiments that might show us the direction to pursue have not been initiated. Nor are they likely to be, given the complexities of arranging and funding such programs. Even the Multiple Risk Factor Intervention Trial (MRFIT) has come squarely against the finding that its control population (and thus perhaps the greater percentage of similar Americans) has apparently changed its health habits for the better *without* being instructed to, possibly as a result of the generally higher consciousness of the need to smoke less, eat more sensibly, and exercise. Mini- and macro-Hawthorne effects are showing up all over the place these days.

The American public has a right to feel somewhat skeptical of health promotion ideologies that are issued faster than a runner's pulse can return to normal. With all the confusion and contradictions, it is no surprise that many exercise aficionados look to more integrated approaches — for example, those recommended by holistic practitioners. They at least present the semblance of some kind of coherent philosophy. Believable or not, such advocates offer guidance in the absence of data, whereas the medical profession often substitutes data in place of well conceived directives.

The uncertainties inherent in the area of health promotion often lead to confusion concerning logistics. Do we, for instance, blame the unfit, the smokers, and the obese for high health care costs, thereby subverting our community-rating insurance system in the process? Do we launch a huge media campaign to urge people to behave in healthier ways on the basis of a small amount of data? Do we give tax

incentives for positive health habits? Not only are the supporting data insubstantial, but intervention strategies take so long to mount that often by the time the study is over, no one can remember what question was being asked. More to the point, the political process is likely to lumber along, creating legislative solutions to problems like these without even stopping to consider the validity of the information. An example is the Massachusetts Heart Law, a measure that since the early 1950s has given policemen and firefighters a full disability pension, tax-free, if they experience a heart attack or have high blood pressure; it is assumed that work-related factors, of which stress is the most popular among the law's adherents, causes such illnesses for these public safety workers. No account is taken of whether the beneficiary smoked, was overweight, had treated his/her high blood pressure, or exercised, risk factors that apparently are of little interest to legislators or to public safety workers themselves.

Health advice, no matter how well-intentioned and firmly supported by the evidence, is only one element in a sea of shifting currents where political forces, changing moods, fads, and peripheral therapies mingle. The average American is a beehive of bad habits and may become disabled as a consequence of his or her own lack of self-care. Nonetheless, we don't know what kinds of techniques to use to help people free themselves of those behaviors that can disable them at some time in their lives. All we know is that people either constitutionally or otherwise predisposed to exercise, sleep well, abstain from cigarettes, use alcohol moderately, and eat regularly seem to live longer and (here's the important part) function more independently when they are old compared to those who don't observe those practices. It sounds suspiciously as though Mom was right.

The frequent admonition to exercise rests upon a rather more substantial base than perhaps has been appreciated. While it is fair to characterize exercise science as a neglected scientific discipline, at least in this country, other nationalities — particularly the Scandinavians and East Germans — have pushed ahead in the study of the human body in motion. The few comparable research centers in the United States found themselves without a cheering section until recently; until, that is, all those run-

Robert C. Buxbaum, M.D., guest editor for this issue, is an assistant professor of medicine at HMS and practices internal medicine at the Harvard Community Health Plan (Kenmore Square). He changed his own sedentary habits while a resident in Madison, Wisconsin, when he found himself surrounded by water, and is now a regular swimmer. Since he is not within walking distance of a pool, he stops by Harvard's Blodgett pool three times a week after work for a one-half to three-quarters of a mile swim during the winter.



TYPICAL MEDICAL ENVIRONMENT INTERIOR, 1979.

LITTLE OR NO SUN, MECHANICALLY INDUCED AIR LIT BY FLUORESCENT LIGHT FIXTURES, PAINTED PLASTER WALLS, CUBICLE-SHAPED SPACES: IT IS NEXT TO IMPOSSIBLE TO 'GET AWAY' FROM THE HIGH-PRESSURED, STRESSFUL ENVIRONMENTS THAT MEDICAL PROFESSIONALS FACE CONSTANTLY.

ners began clogging the highways and sidewalks. Now every other runner seems to want to know his/her aerobic capacity, pulse rates are cocktail party conversation (and the guests are likely as not to be drinking plain, but expensive, mineral water), and every physician knows at least a few belligerent and compulsive fitness advocates, people who will insist upon running through the "wall of pain."

Long before Americans took to the streets and began gathering at runners' conventions, certain European laboratories were quietly investigating the way the human body works as it runs, skis, swims, or cycles, on the simple premise that the body was designed to move. In a world that conspires against physical activity, it is good to know what we're capable of, if nothing else. Professor Per-Olof Åstrand of one of the foremost research centers, the Karolinska Institute in Sweden, points out that the body can adapt to a good many environmental changes, of which inactivity is one. We seem, because of the nature of work, transportation, and social behavior, to be on the way to regarding low energy output states as the norm, a radical change from life as it was as little as two or three generations ago.

We share this pattern, along with high coronary morbidity and mortality, with almost all the European northern tier states, Canada, and a few other developed countries. Yet, the United States is practically the only country in this group that does not have a highly organized set of plans and policies to encourage physical fitness for its people. *Fitness policy*, a fact of life elsewhere, is notably absent here.



TYPICAL MEDICAL ENVIRONMENT EXTERIOR, 1979.

NO SUN, NO GREEN, NOT MUCH AIR, NO PLACE TO EXERCISE, MEET A FRIEND FOR LUNCH (EXCEPT IN PLACES LIKE TRAFFIC ISLANDS), OR GO TO FEEL 'BETTER'. IT SUFFERS FROM BOTH TOO LITTLE AND TOO MUCH PARKING FOR AUTOMOBILES... THE SITUATION WORSENS IN WINTER.

The theoretical framework for such a policy does exist. Beginning in the early 1950s, J.N. Morris of England began reporting on the differences in observed cardiovascular mortality between groups of people who stayed fit and those who did not: busdrivers and bus conductors; postmen and sedentary postoffice workers; those who engaged in moderate leisure-time exercise and those who did not. These epidemiologic studies suggested that exercise provided some protective effect. In those days, no one was proclaiming "runner's high," invoking endorphin secretion, or selling running shoes, and the observations were for the most part based upon those occupational situations — dwindling rapidly in our post-industrial culture — which tended to require muscular exertion of the worker.

Similar studies by Ralph Paffenbarger of Stanford and the Harvard School of Public Health, on longshoremen, further supported this hypothesis, and Paffenbarger's well known recent study of Harvard College graduates (see p. 40) shows an association between moderate exercise (about 2000 calories expended per week) and a markedly lowered rate for coronary disease.

The expenditure of about 300 extra calories per day matches well with the physiology of conditioning. The *training effect* — lowered pulse rate for a given level of exertion and increased stroke volume — appears to be achievable by about the same level of commitment as well, though for more competitive and higher performance levels, further conditioning is necessary. The message is this: by exercising about thirty minutes a day, three days a week, a reasonable

level of cardiovascular and muscle fitness takes place. Increments up to forty-five minutes and five days a week bring about more conditioning, but beyond that, little extra benefit occurs, except under highly specialized forms of training appropriate to the professional athlete and competitor. Moreover, as one begins to specialize in sports, conditioning programs are likewise custom-tailored.

Left untrained, the body cheerfully adapts to inactivity. Inactive is a proper way of describing the American lifestyle. Measured in energy-expenditure terms (calories expended, ml. of O_2 /Kg./min. or METS — metabolic equivalents), the average American doesn't do much in a day beyond that required to lie down and breathe quietly. This includes driving an automobile, doing housework, or being desk-bound with occasional trips to the bathroom and coffee breaks loaded with empty calories. By contrast, a foraging culture like that of the Bushmen requires an expenditure of over 8000 calories; we are lucky to burn off even 1500. From a purely teleologic point of view, the body was designed for physical work, but modern society has almost defeated that function.

Nowadays when we use our bodies in a physical sense, most of us do so through some kind of recreational outlet; convenience, proximity, and politics determine whether or not we will exercise. Traditionally, both local recreation departments and the schools we attend have provided the wherewithal for staying in an exercise groove. Yet the most obvious and ignored resource is in the workplace. American employers are light years behind those of Sweden and Japan, for example, where nearly everyone takes time out for regular exercise breaks. Studies carried out in Sweden suggest that industrial exercise programs are associated with both fewer sick days and hospital admissions for participating groups. Whether this is due to self-selection is hard to know, however. The level of commitment made by companies such as Saab-Scania and Panasonic is astonishing to behold: swimming pools, gyms, exercise testing, and a highly trained corps of specialists are available for the training and enjoyment of workers. Public policy in these countries clearly takes the physical fitness of the population into serious account.

A few simple guidelines for fitness development are useful in any setting:

- The activity should make a positive contribution to the health of the community.

- It should be accessible to all citizens—including the physically handicapped.

- It should be fun.

There is potential for fitness being within the reach of everyone, with careful planning. Indeed, great potential is lying dormant right by the shores of the Harvard Medical School.

As a graduate school not even near the main university campus, the Medical School lacks real access to the athletic facilities in the Soldiers Field complex. All faculty and students can use these — and indeed it is the University's intention that they do so. But there is a significant difference between working in the environs of Harvard Square, where a noon hour swim is a distinct possibility, and conquering the logistical problems of leaving work in the Medical Area

for a recreational trek to Cambridge. The facilities in the Medical Area, as anyone can attest, are limited and inadequate even relative to the population of eligibles. The Vanderbilt Hall Athletic Club recently announced that students (medical, dental, and public health) have free access to the dormitory's facilities, and that 180 additional memberships would be made available to faculty and staff. Obviously this is better than nothing. Yet a larger constituency exists — even beyond the population of faculty and students — that could be served as well: the seventeen thousand people who work in the surrounding offices and laboratories. The three Harvard schools, six hospitals (the new Affiliated counted as one, not three), and three other institutions — Simmons College, the Massachusetts College of Pharmacy, and the Winsor School — included under the umbrella of the Medical Area Service Corporation (MASCO) generate an annual payroll of a quarter of a billion dollars and have a heavy investment in their respective buildings and grounds. Such solid educational citizens have the collective might to develop at least a modest fitness program for their staffs, students, and faculties.

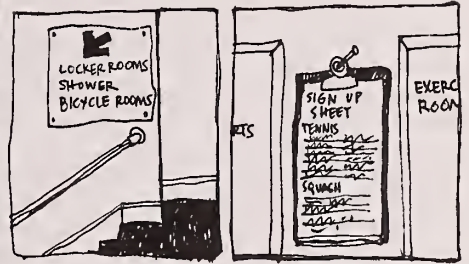
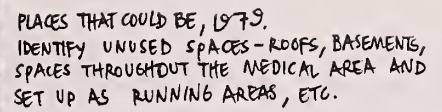
The situation that confronts a first year medical, dental or public health student, for instance, must be puzzling, especially if he or she enters directly from college. In almost any college, participation in physical activity is often taken for granted, at least for those who wish to do so. Harvard's new Blodgett pool, a 50-meter wonder, and the stunning track, the subject of a cover story in a recent *Scientific American*, are testimony to the belief that college should stimulate physical development for its charges. However, little or no concern is expressed by the athletic department or the Harvard planning office for the dearth of comparable resources in the Medical Area. It is assumed that interested persons from this area will simply transport themselves to Soldiers Field. Contrast this with the situation of a Business School student or faculty member who merely walks across the street to some of the region's finest facilities. Everything else being equal, those buildings must represent a significant fringe benefit in the mind of a faculty recruitment committee (on the other side of the river), particularly these days.

For the college student used to running, playing tennis, or swimming, the heavy schedule of work at Harvard Medical School can make for a significant change in lifestyle; it becomes a struggle to find outlets necessary to maintain fitness. In Scandinavia or Japan it would be unthinkable that such an aggregation of people working and studying together would lack an exercise area or that people would be required to travel across the city for regular activity.

Whether one believes that benefits to the employer and employees can be demonstrated (and the data here are soft, without question), it does seem that the seventeen thousand people within — at most — a single mile radius could be better served. The only agency capable of such initiative, other than Harvard University itself, is MASCO. It now provides security, transportation, and parking, and is on the verge of supplying power to the area. MASCO has the means, but presently lacks the will or direction to pull together the strands necessary to upgrade one aspect of the quality of life in this virtual ecosystem.

One practical remedy for the present situation would involve the recycling of present buildings to transform them into exercise emporiums. (The about-to-be-vacated Lying-

**a. develop
scattered-site
facilities**



b. recycle existing building into a fitness center

THIS PLACE WOULD CELEBRATE GOOD HEALTH, EVEN IN WINTER IT WOULD BE PLEASANT, VITAL, AND INSPIRING. ACTIVITY IS VISIBLE, ATTRACTIVE & FLEXIBLE. EVEN THE GLASS COULD BE ACTIVE - IN COLLECTING SOLAR ENERGY FOR THE FACILITY. THE FACILITY COULD BE SERVED BY A YEAR-ROUND SHUTTLE BUS WITH INTERIOR WAITING AREAS, ROOMY SECURE BICYCLE RACKS & PLEASANT PAVING & LIGHTING SO THAT NIGHT OR DAY, SUMMER OR WINTER GETTING THERE "UNDER ONE'S OWN STEAM" IS ATTRACTIVE (AND FUN!)

Running through the Woods

There is a trick to the exemplary state of health associated with the Scandinavian lifestyle — exercise is an integral and accepted part of their culture. Running is the sport of choice in a number of countries where miles and miles of wooded running and walking trails — called *parcours* — fulfill both aesthetic and practical requirements. The *parcours* is laid out as a loop of about two miles, and incorporates twenty exercise stations, each marked by a sign, where one stops and performs the isometrics specified.

While they are identified with Scandinavia, the *parcours* originated in Switzerland some twenty years ago and spread rapidly, helped by the sponsorship of various public-spirited corporations. *Parcours Vita* are named in honor of the Vita Insurance Company, which provided many Swiss communities with the signs. The Swedes pirated the idea from the Swiss and added their own style of amenities. Many of their trails include a small structure where one can change, shower, and take a sauna. Known as Trim Centers, they — as well as the *parcours* — are frequently adjacent to train stations so that people can exercise on their way to or from work.

An appealing feature of the *parcours* is the soft, springy running surface, which consists of a three to four inch ground cover of pebbles; a thick layer of sand, sometimes mixed with sawdust; and a final layer of sawdust or woodchips.

About six years ago, Bob Buxbaum and his wife Ann visited several European countries and saw the kinds of effort being made for fitness. They returned home convinced that Americans could benefit from the same type of activity and persuaded a nonprofit consulting organization in Boston, Management Sciences for Health, to try to market *parcours* — which they renamed life courses — to individual communities. At the same time entrepreneurs in other parts of the country formed companies to market similar *parcours* paraphernalia.

After a year of prodding, MSH sold its first customer on

the idea; a site next to a municipal playground in the Auburndale section of Newton was chosen and a modified life course — fifteen instead of twenty stations — was installed. In the past five years, life courses have been set up in Lawrence, Dennis, Wilmington, Stow, Wellesley, and Worcester, most of which are maintained by the town recreation departments. MSH has also marketed Life Courses to fifty communities in Illinois, New Jersey, Delaware, and Texas. MSH consults on the construction phase — sometimes even helping to dig the holes for the sign posts — as well as marketing the necessary signs, which are patterned after the Swiss model.

A Life Course is usually situated in a city park or school playground, where there already is a good level of attendance. They can be built for as little as \$3,000, although some communities have gone in for lavish accessories — or a fancy running surface — that can bring the cost up to \$20,000; the package of twenty signs and several directionals sells for about \$525. A number of courses have been built using CETA funding to dredge the path, remove boulders, and lay down the surface.

In Europe, the tendency is to scatter the exercise stations throughout the total distance, and running is not emphasized. The courses put up in this country usually will cluster the first set of warm-up exercise stations, followed by a variety of isometrics in the middle, and then an uninterrupted run for the last one-half mile. Sometimes the course will be designed in a figure 8, with a loop coming off the main path for those who wish an additional run. The more successful courses meet five basic criteria: they are appealing places to be, with plenty of shade; easily accessible by public transportation, where parking is also available; and on land that has other recreational uses.

The best selling point of any of the generic type of *parcours* — and there are some 500 in the US — is that they work well as a catalyst for neighborhoods. On a pleasant summer day, many people can think of nothing finer than to take themselves into a sylvan spot for an invigorating interlude of self-paced exercise.

— D.M.

In Division of the Boston Hospital for Women suggests itself for a healthful metamorphosis, as does the building at the corner of Longwood and Brookline Avenues, presently occupied by the Massachusetts College of Art, but likely to become available in the near future, when the college moves out of the neighborhood.) Another solution would be the development of scattered-site facilities — rooftop tracks, exercise rooms, plunge pools (these are small but Olympic-length pools for lap swimming, which can serve a large daily volume of serious swimmers), squash and racquetball courts (the Peter Bent Brigham's squash court is now a business office with an odd high ceiling), appropriate locker and shower spaces, as well as secure bicycle stands. A somewhat safer Fenway makes running an attractive option for many now, and the availability of showers would no doubt tempt more to join in.

The area of exercise cannot be run away from. Recent legislation — particularly the Health Promotion Act — makes it likely that we will see federal initiatives in the area of physical fitness. The President's Council on Fitness, a poorly-staffed and basically physical education agency until now, recently has been placed where it belongs,

in the Department of Health, Education, and Welfare. Fitness is a health issue Congress seems to be saying. And there are plans afoot for the funding of sports medicine conferences and institutes in various parts of the country.

As it happens, Harvard's affiliated institutions contain among them one of the most remarkable aggregations of professionals interested in this subject, and there are others in Boston with international reputations in the laboratory science of exercise. Too bad these haven't been brought together to work as a team; Boston could and can lead in this important area of human development. Human exercise physiology, cardiovascular disease prevention, program planning and implementation, and injury prevention are all skills respectably represented by HMS faculty. Good models need to be built and good experimentation reported upon. People are asking for guidance and medical advice about their reawakened bodies. What may have seemed a fad a few years ago seems to have deepened into a reassertion of a basic human need: to move, and to move well. In the Age of Less, buildings can be redesigned, and people can rework their bodies. Participating in this part of the health promotion process could be one of Harvard's most important functions in the next decade. It is about time the Medical Area looked at its shape and did something about it.

Who's on First?

The secret athletic lives of HMS students

Vicki Heller '82: "I had wanted to play tennis for months."

It was 4:30 in the morning and I had just begun to dream about things other than the anatomical pathway of the accommodation reflex and the microbial genetics of reoviruses when I was startled by a knock on my door. Knowing how the walls of Vanderbilt Hall conduct noise, I assumed this to be one of the third floor residents practicing his version of the relaxation response by pounding nails to the wall. I pulled my pillow over my ears to muffle the sound. The knocking continued. "Vicki!" I heard whispered. "Get up! The tennis court is free!" I wasn't even sure whether the part I was dreaming was that the tennis court was free or that someone was waking me up from my precious few moments of repose.

"You said you wanted to play tennis didn't you?" I nodded in reply. It was true. I had wanted to play tennis for months. I didn't think that walking to the Stop and Shop and back once a week was sufficient exercise for me. I had had sporadic nightmares about spending so much time engrossed in textbooks, tucked away in a library carrel. I might become so physically unfit that I couldn't walk down the stairs, or when palpating my arm — to learn the superficial muscles — I might not be able to find them, their having atrophied due to disuse.

"All right, I'll be on the court in a minute." I don't know what came over me. Maybe the uncanniness of it all, playing tennis at dawn.

"You know," said my friend, "you have no idea how lucky we are. I've been watching this court for three weeks and this is the first time I've noticed it vacant." We rallied for at least an hour. I thought it was wonderful. I took a shower and climbed back into bed. When my alarm rang I felt fresh and energetic, and not at all sure whether the tennis event vividly prancing in my memory was truth or mirage.

That afternoon I polled some of my classmates about HMS's physical health facilities, and about their experiences in fitting the athletic activities they enjoy into their lives. This is what I was told:

Editor's Note: The athletic situation has changed somewhat since these pieces were written. Effective this fall, the students have the use of all Harvard's athletic facilities, free of charge.



Bill Paganelli '82: "Most students have actively sought out ways to hypertrophy their muscles."

It has often been rumored that the absence of elevators in Vanderbilt Hall is the result of a conscious effort by the architect to provide sedentary medical students with needed exercise. Though the lengthy climb to their rooms may constitute enough exercise for some bookworms, most of the students have actively sought out ways to hypertrophy their muscles and increase their cardiac output.

Students are active in almost every athletic pursuit — basketball, softball, volleyball, swimming, running, (marathons included), skiing, racquetball, tennis, squash, fishing, and frisbee. Many activities center around Vanderbilt and the Quadrangle, but some sports require a bit of traveling. Swimmers sometimes use the English High School pool, or they go to Cambridge and pay a fee (\$40) to use the new Blodgett pool. Softball players venture into Brookline in search of playing fields, only to find them often already reserved. For students with limited free time, the logistics involved in taking part in these sports can be frustrating.

Some of the brighter points in athletics last year were the soccer games between HMS I and II; the cross-country and downhill skiing made possible by members of the first

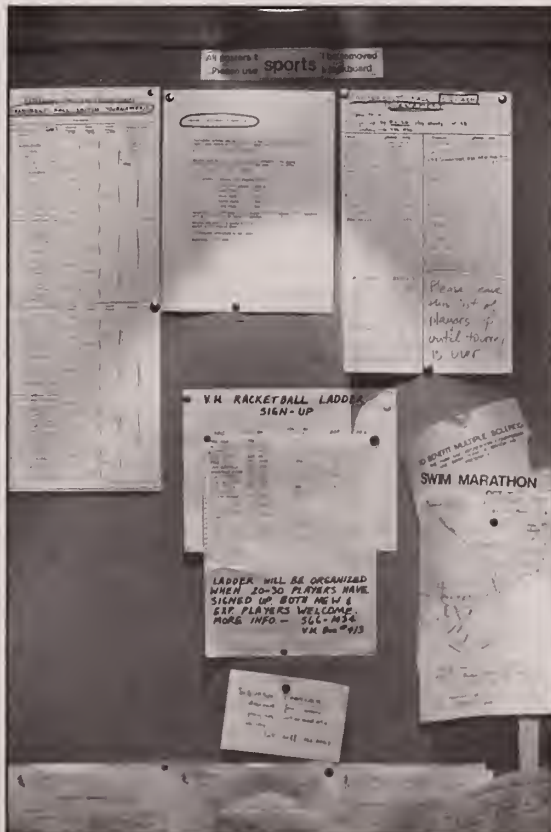
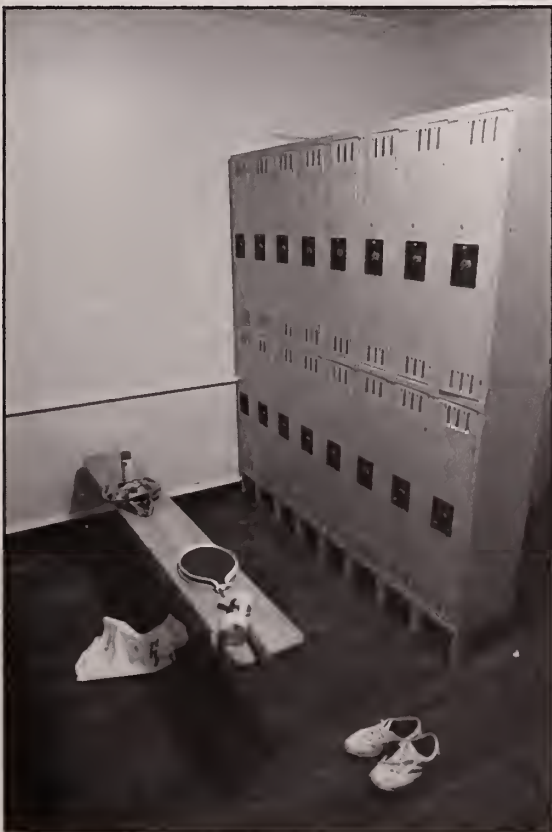
and second year classes who rented two ski houses in New Hampshire; the basketball leagues organized by students from each class; and softball challenges between HMS and HST, and between the Class of '82 and the faculty. And the HMS '82 All-Stars had a fine showing at the New England Medical School Tournament held at Brown. Under the auspices of the Vanderbilt Hall Athletic Club we held a squash tournament and set up tennis and racquetball ladders.

Everyday one sees joggers heading from Vanderbilt Hall to the Fenway or for a brisk workout at Jamaica Pond. This year the Medical School boasted its usual contingent in the Boston Marathon, and Don Kameron '82 had a particularly fine time of 3:09.

It appears that many opportunities exist for the medical students to pursue athletic endeavors. However, I would like to know why students, who pay an arm and a leg in tuition to Harvard University, are required to pay an additional and substantial sum in order to use the normal University facilities. And I would like to know when the popularity of the Vanderbilt Hall's facilities will totally preclude the use of them by the medical students, for whom they ostensibly were originally intended.



Vanderbilt Facilities



Overutilized: the demand for the women's locker room far exceeds the supply. Besides a lack of floor space, there is but a single toilet and shower available. The men's locker room has twelve of each.

Peter DiBattiste '82: "Visions of daily basketball and squash games danced in my head."

Frankly I was impressed. Well, everyone knows that med students have a difficult enough task in dividing their time between physiology/biochemistry/histology, let alone between basketball/squash/tennis. But there it was in print. In the orientation booklet it said: an outdoor tennis court; five squash courts; five racquetball courts; a weight room; an exercise room; a table tennis room; and a full-sized basketball court. I read it over for the third time. I distinctly remember telling myself, "It's too good to be true!" I vowed that my first act as a Harvard Medical School student would be to confirm the existence of these facilities.

Sure enough they were all there in Vanderbilt Hall. Visions of daily basketball and squash games danced through my head. Tennis! Racquetball! I might go wild, a frustrated jock like me having unlimited access to these facilities.

It puzzled me. Would there really be time at HMS to indulge in sports? After a moment's thought it made perfect sense to me that an institution dedicated to providing the best possible medical education would make adequate provision to maintain the physical health of its students. I was elated to think that my school had such a sound policy with regard to athletics. I loved it!

My unbridled enthusiasm regrettably didn't last forever. Somehow I didn't remember reading about reservations for court time; somehow when I inspected the gym I neglected to see the sign-up sheet on the wall showing solid bookings by some group or other. I was not aware that anyone in the Harvard Medical community could play at Vanderbilt for a paltry sum. I was to find that the facilities — which at first seemed plentiful — were grossly inadequate for the population they served, and available only at the worst times, at that.

Yet my optimism did not die easily. Maybe there won't be forty people every evening to play basketball. Maybe I'll be able to get a squash court at some time other than in the middle of a neuro lecture. After the enthusiasm of the first few weeks of school fades into the grind of scholarly pursuit, I can surely get an hour on the tennis court.

I found that thinking positively is not always enough. As the outdoor tennis court gave way to snow and ice, the tennis buffs diverted their attention to indoor sports, and time on the racquetball and squash courts became even more scarce. The one saving grace was that my true preference was basketball. So what if I had to play at ten o'clock at night. A workout is a workout.

My classmates and I had a regular league going four times weekly, at 10 pm. Again I was convinced that physical health is compatible with a med student's routine and goes hand in hand with health care. Fifty of my classmates liked the idea so well that the First Year Class League was formed. We planned to use the gym in the evening from 9:30 to 11.

Unfortunately, neither the idea of a basketball league nor the use of the gym belonged exclusively to the first year class. Another league had been begun, for the entire Medical Area, with games running from 7 to 9:30 pm. Twelve teams in all had to share the use of the gym. But it was manageable,

and two nights a week I looked forward to playing. I was pleased with this compromise, and thought I could continue with this reduced level of activity throughout the year.

But again I was mistaken. In January I had the pleasure of reading this notice: THE GYM WILL BE CLOSED FROM JANUARY 13 TO FEBRUARY 3 FOR THE SECOND YEAR SHOW. I read it for the third time, I didn't want to believe it. The gym was to be a theater for three weeks since there was no other semblance of a stage for the show. Having matured, I was by then used to such disappointments, and when the fourth year show later camped out in the gym, I didn't show any obvious signs of irritation.

In retrospect I wonder how I could have let myself get carried away with the idea of unlimited use of athletic facilities. After all, this is medical school and I probably should get my exercise by cracking the books. I probably think more while running along the Charles River, anyway.

Marty Williams '82: "Many were forced to look elsewhere to swim."

At every medical school interview I inquired about the athletic facilities. The responses varied from sites and equipment specifically for medical students to university facilities located close to the school. Harvard informed me of squash courts, a basketball court, a tennis court and so forth in the dormitory, and of free access to a swimming pool. I was pleased to hear this. Upon arriving I found that what I had been told was not exactly so.

The summer before entering medical school I swam at least a mile, five days a week. I was extremely disappointed to find out that HMS was no longer permitted to use the English High School pool. Several regular swimmers from the first and second year set themselves a task to secure a permit from the Boston School Committee — but we had to guarantee the provision of lifeguard services ourselves. The student lifeguards had to contend with locked doors, lack of lighting in the pool area, and lack of lights in the locker rooms, in addition to the surveillance of swimmers. This arrangement proved so popular that many of the students who were instrumental in securing these privileges were forced to look — and pay — elsewhere to swim, such as in Cambridge.

The plague of all the HMS athletic facilities is that anyone with an affiliation with the Harvard Medical Area can abuse these privileges. On a given night there are usually some thirty-five regular swimmers who are not medical students. Nurses from the nearby hospitals, assorted doctors, technicians and Ph.D. candidates, students, spouses, their companions, and a few medical students, if they are lucky enough, are all devotees of the evening swim. Needless to say, those of us who desire to relax after a full day of classes, and serious swimmers wishing to swim laps, are discour-

Winged Victory

It was the kind of day that only diehard runners describe as "nice" — a chilly, wet and dismal last Sunday afternoon in October. An observant motorist on Storrow Drive might have caught sight of a few bright spots in the grayness, however. Outfitted in kelly green "winged victory" t-shirts, specially designed for the occasion by Vicki Heller '82, some seventy entrants in the First Annual Vanderbilt Hall Athletic Club Run could be seen gathering group momentum by the foot of the BU Bridge, next to the Boston University Boat House. A 6.2 mile course, laid out by Don Kamerer '82, a committed marathoner, proceeded along the banks of the Charles River over the Harvard Bridge to the Science Museum. The route then crossed the Charles River Dam and returned by way of the Boston side to the starting point.

A larger turnout was expected, but both the weather and failed good intentions kept a number of those who had signed up from testing their mettle. Approximately eighty percent of the runners were students — some of whom had never competed before and were jubilant just to finish — and the remainder were faculty and staff. The winner, Lewis Lainey, a material science technician in the department of physiology, has been racing for a year and a half. Having finished twelfth in a field of 800 at the Casco Bay (Maine) Marathon the previous Sunday with a time of 2:40:16, he was a good bet. His time of 32:30 gave him a quite respectable average of 5:21 minute miles. "It was a nice race and a flat course," Lainey remarked. "I didn't know what talent was in the field, so I made my move early. I knew the guys right behind me were trying to catch up, but I tried to keep a good distance between us." Don Kamerer was the one trying to edge Lainey out, and he was clocked at 34:07. The first woman to finish was Deborah Atwood, manager of Vanderbilt Hall and an ardent runner, who has run the Boston Marathon twice. Her time for the race was 42:09 and she completed this year's marathon in 3:42:00.

The race was the idea of two nonrunners, Richard Clark and Peter DiBattiste, both second year students, who took over the athletic program at Vanderbilt this year. They have a number of events in mind which they believe will catalyze the curious onlookers as well as the accomplished athletes. This winter, basketball leagues will be seeing action in the Vanderbilt gym and the en-



Don Kamerer '82 coming in second.

thusiastic promoters hope to stage a basketball marathon. Like the dance marathons in the 1930s, spectators will bet on the stamina quotients of individual players. The money raised will be donated to the Jimmy Fund. Squash and racquetball tournaments are also planned.

The response to the October 28 VHAC race was proof that Clark and DiBattiste are on the right track. Everybody had fun and a reprise is in the works for the spring — which should allow plenty of time for the well-intentioned to get a head start.

— D.M.

aged by the overpopulation of flailing arms and splashing feet.

The same problem goes for the squash, basketball and tennis courts. After playing competitive squash at college I looked forward to continuing my game at HMS. When can I sign up for a court? I can interrupt my studying at 10 pm if I wish to get in some squash. Who gets the prime time spots? Again, largely doctors, postdocs, and nurses in the immediate vicinity — those it would seem who have both the time and money to join an outside health club. I know of few medical students who can afford either. Nonresidents of Vanderbilt are supposed to pay a nominal fee (\$25) for the privilege of usurping space from those who pay Harvard for room and board. The present facilities, lean as they are, are catering to a population of more than 5000. (My undergraduate college had three times as much and only 1900 people!) Clearly Vanderbilt Hall is overloaded in this respect. It seems reasonable to me either to restrict the use of

the Vanderbilt facilities to Vanderbilt Hall residents and HMS students who are nonresidents but pay the fee, or to raise the money to build an honest-to-goodness recreation center able to meet the demands of the immense Harvard Medical community.

C. Noel Bairey '81: "We have only limited time for outside activities."

The information packets that are issued to prospective applicants contain a statement concerning physical health. That is well and good since the majority of students are athletes — some are just Fenway joggers or Sunday squash players, but many are national competitors.

Harvard, in essence, makes a point of saying that athletic endeavors are an important and valid component in people's lives.

Yet why is it that once we arrive ready to work and study we find it so difficult to continue in those athletic activities that have been established as a part of our lives? Why is it that the Medical School has so little to offer its students? Students have not pursued this issue because we have only limited time for outside activities.

It would be in Harvard's best interest to follow through in its "athletic mandate" for the Longwood area. The most salient needs of both students and the HMS community are for an indoor track and swimming pool.

Tom DeLaney '82: "Realization of these aims is not impossible."

It is little wonder that with long days spent sitting in lecture halls or laboratories, and evenings spent intensively reading, participation in one athletic pursuit or another came to be regarded by most first year medical students as essential to their general health and well being. Even those whose previous athletic interests had consisted largely of outscrambling their classmates for those coveted A's in organic chemistry turned to exercise and sport as enjoyable respites from studying.

Use of the Vanderbilt tennis court was nearly uninterrupted on pleasant days. Running shoes replaced topsiders as the footwear of the fashionable medical student. Dance classes increased in popularity. During January, many students enjoyed skiing, skating, and snowshoeing courtesy of the vacation houses rented in New Hampshire by both the first and second year classes. In February and March the first year class organized a six team intramural basketball league that involved fifty of us. With the arrival of spring, weekly softball games started up, with faculty sluggers joining in.

Medical students, however, were not the only ones interested in a bit of daily exercise. Graduate students and students at the School of Public Health, laboratory technicians, and residents and fellows from nearby hospitals all wanted to share in rousing their lethargic limbs into action. Hence the Vanderbilt tennis court, the basketball court, the five squash courts, along with the one hour and fifteen minutes of available swimming time at English High School were in extreme demand.

Many med students, rather than have to elbow out otherwise friendly peers in a sign-up competition, simply put on their running shoes and went jogging. That option of course lost its attraction once winter weather appeared.

While adequate facilities and opportunities exist for Harvard students in Cambridge, the facilities in the Medical Area itself cannot accommodate the clamor that has arisen for them. In view of medical students' schedules, it is neither practical nor always possible to make the trip over to the splendid Soldiers Field complex. Obviously, expanded athletic facilities here would redress a currently unfulfilled need, and judging from past use, should include a pool, more tennis and squash courts, another basketball court,

and more locker room space. Fortunately, playing fields are available in Brookline and the Fens.

Realization of these aims is not impossible. Space should become available when the buildings now occupied by the Peter Bent Brigham and the Boston Hospital for Women are vacated. In light of rising costs and decreasing federal support, money is as always a potential obstacle. Against the backdrop of the multimillion dollar cost incurred for the Medical Area Total Energy Plant, the cost of new athletic facilities seems minimal, particularly when such a construction project might be used to improve otherwise strained relations with the surrounding community. Perhaps community recreational programs could be developed.

In short, exercise has become one of American's favorite pastimes. In the Harvard Medical Area, however, the pursuit of fitness is hindered by a game of musical chairs. Clearly the quality of life here would be greatly enhanced if this frustrating situation could be improved.

That evening I dozed off rather quickly. I began to dream about immunoglobulins and cardiac output. Then I dreamed that they cleared out all of the patients at the Lying-In and put in a twenty-five meter swimming pool and an auditorium for plays and six tennis courts and a gigantic row of squash courts and another row of conference rooms for continuing education programs. I dreamed I was a fourth year medical student who came in to relax after a thirty-six hour stint on an advanced medicine clerkship at the . . . I heard a knock at my door that woke me. "Vicki!" the voice called out, "can I borrow your tennis racquet? You won't believe it, but the court is free!" I got up from bed and handed over my racquet, and took a moment to glance outside at the Lying-In, to see whether it was still there. It was. I climbed back into bed and tried to dream the same thing over again, but I was sleepy and I couldn't remember what I had been dreaming before. I began to dream about the pharmacology of dopaminergic synapses, and that is all I can remember.

One Man's Guide to Corporate Fitness

by Steven R. Levisohn

A small investment yields rich human dividends

We have come a long way since fitness meant being able to kick sand in the face of some ninety-seven pound weakling. Led by literally tens of millions of recreational joggers, swimmers, and participants in other "life sports," the medical profession has begun to recognize the role fitness plays in promoting good health. However, fitness is not a subject found in medical school curricula, and while exercise is included in *Index Medicus*, it doesn't take much time to stay current with the literature. Like many others, I had no problem discovering the pleasures of running and regular exercise; however, it proved more troublesome to uncover competent advice and information on the range of physiologic (and occasionally pathologic) changes that occur with regular physical activity. Thus, when I was approached a year ago by the National Fire Protection Association (NFPA), a Boston-based, non-profit corporation, to help develop a fitness

Steven R. Levisohn '66, instructor in medicine, is an assistant in medicine at the Massachusetts General Hospital where he practices with Internal Medicine Associates. He runs seventy miles a week.

program with their 250 employees, I was both enthusiastic and cautious, having little more than my own running experience to draw upon.

At the outset, my professional qualifications for the development of a medically sound and practical program were largely the result of my involvement with the runners' clinic at Massachusetts General Hospital. Experts from ordinarily disparate fields — orthopedics, coaching, podiatry, and others pooled their resources to the distinct advantage of the runners needing treatment. The success of the clinic proved the importance of combining experience from several specialties. When I turned to the literature, hoping to supplement my knowledge, I rediscovered what I already knew: published information on fitness is at best scanty. I was able to learn more from the journals of physical education, and from one excellent book, *Textbook of Work Physiology*, by Åstrand. The most help, though, came from Robert Sevens, a long distance running coach and registered athletic trainer also at the runners' clinic who subsequently shared in my efforts to educate and inspire the NFPA.

As I found out, fitness programs such as the one I was being asked to design have been a growing feature of the



corporate landscape for the past seven or eight years. To date they have been intended primarily for personnel at the management and executive levels, although some are company-wide. The proponents of corporate fitness already have formed their own organization, the American Association of Fitness Directors in Business and Industry, affectionately known as the AAFDBI — an example, I suppose, of verbal fitness. It has approximately 400 members.

The impetus for these programs has come most frequently from executives who themselves have become hooked on fitness. One of these, Jess Bell, president of Bonne Bell Cosmetics, has gone beyond the limits of his own company to encourage regular exercise, and now sponsors a series of road races for women, including an annual event in Boston. Conversely, it is my impression that physicians, including those in occupational medicine, have been less than active in promoting such programs. Prior to becoming involved with the NFPA, I had been talking up exercise, particularly aerobics, to my patients, but I, like the rest of us, had never been taught to write a specific, individualized exercise prescription.

Wherever the inspiration comes from, the business environment seems ideally suited to incorporate regular exercise programs into one's daily life. It can make time, place, instruction, and moral support available — all, in many cases, that is needed to get people who are overweight, chronically tired, or just generally lethargic back into the gym or out onto the track, often for the first time since high school or college.

The NFPA program was inspired, typically, from above. The vice president, like many NFPA employees a former firefighter, had begun to jog two or three years earlier, and when he came to me he had a specific goal in mind: to protect the major asset of the company — its people — and make their work environment a more enjoyable, attractive place. My subsequent efforts, then, were directed toward that goal; I sought to develop a fitness program that would enhance the quality of employees' lives, promote enduring habits of healthful activity, and — ultimately, ideally — reduce morbidity from various chronic illnesses. The population was an evangelist's delight — the majority of the employees were thirty to forty-five and almost all held white collar, scientific or managerial positions. From my vantage point they were ripe for sneakers and some huffing and puffing.

I based the program on two premises. First, I wanted it to complement and build on — rather than replace — each individual's current athletic interests and activities, and thus to foster the recreational aspect of fitness. Second, I wanted it to develop, in a balanced style, all the components of health and fitness that exercise could be expected to improve. Inasmuch as each sport encourages some aspects of fitness and performance, neglects others, and may be detrimental to still others, one of my intentions was to teach the NFPA employees what their present athletic preferences were doing for their bodies, and to suggest supplementary exercises that could help in different, but still desirable, ways.

“The business environment seems ideally suited to incorporate regular exercise programs into one's daily life.”



“We hastened to reassure our confirmed non-runners that they indeed could gain valuable dividends from other sports.”



In order to turn these principles into individual exercise and recreational prescriptions, and to decide upon the physical facilities needed to accommodate them, we held a series of initial sessions with groups of employees. At these seminars, Robert Savene and I discussed various concepts of fitness, and talked about both medical benefits and drawbacks. We addressed the issue of cardiac risk, which seemed to concern a fair number of ostensibly healthy people. The attendance at these meetings was excellent — almost half of the employees showed up — and we kept the pedagogy as loose and open-ended as we could, encouraging questions and providing demonstrations of some of the simpler exercises. In the process several misconceptions came to light. Many of the employees apparently felt there was always a direct correspondence between strenuous exercise, like downhill skiing, and increased overall fitness. In addition, most had rather inaccurate ideas of how many calories would be burned by a particular activity. And a number of women were afraid that weight-lifting and strength training would automatically produce unattractively bulging muscles. My impression was that these people had quite positive attitudes about the relationship between exercise and good health, but their knowledge generally fell short on the whys and wherefores of the matter.

Interestingly, a certain amount of tension surfaced between runners and non-runners in these sessions. This may have been aggravated by our tendency to use running

as a paradigm of physical activity. It certainly is a convenient example, and in terms at least of aerobic sports, only martial arts and cross-country skiing can compare favorably. But among the people attending these seminars were several who simply did not like to run, and who resented our apparent implication that the best way to find fitness was literally to run after it. This, of course, was not what we had had in mind, and we hastened to reassure our confirmed non-runners that they indeed could gain valuable dividends from other sports.

Once we determined that we had a sufficient number of followers we went ahead with small-group education and demonstration workshops designed to go into greater depth about particular sports and exercises. We hired a physical educator — Ms. Lorrie Sparks, formerly the fitness director at the Boston “Y” — who met with each employee by appointment to take a personal athletic history. After testing people on various equipment and helping to establish reasonable goals, she finally came up with a written fitness prescription that could be implemented at an on-site facility. Medical clearance was provided by each employee’s personal physician. We encouraged thrice-weekly participation in the individualized programs for forty-five to sixty minutes a session, which included time for showers and changing. As personal goals were met, we helped set new ones. Our primary intention was to get people fit for both health and recreation. Ideally, they would go forth from our formal program to jog, play tennis, cross-country

ski and the like on their own, better able to play safely and vigorously at the sports they enjoyed.

In order to provide the participants with a specific framework to assess their own fitness and rate the value of the sports they were engaged in, we broke down the program into five components:

- 1) Cardiovascular or aerobic fitness, which is enhanced by regular (three to four times per week) sustained activity for a minimum of fifteen to thirty minutes per session. Examples, familiar in this day and age, include running, cross-country skiing, swimming, biking, and brisk (three to five miles per hour) walking — in descending order of vigor.
- 2) Endurance, which is developed in the same manner as aerobic fitness and likewise depends on a good cardiovascular system. However, according to Swedish experiments, endurance is physiologically related to muscle-bound energy stores and is very exercise-specific. A marathon runner may have only mediocre endurance for swimming unless he or she has trained for that sport as well.
- 3) Strength — for general fitness. The strength of knee, abdominal, and back muscles is vital to prevent the most common musculoskeletal problems, as well as the injuries that can befall, for example, a weekend skier.
- 4) Flexibility — here, yoga-type exercises are the most useful. As muscles become conditioned, they also become tight and lose their range of motion — a major cause of sports injuries.
- 5) Recreation — or, learning how to play again. The sense of well-being that comes with fitness and sports is one of the nicest and most essential parts of a good program.

The NFPA was able to allocate about 600 square feet of floor space for an assortment of mechanical devices powered by human energy, and another 400 for showers and lockers. We chose equipment that would do the most good for the largest number of people. For the sustained, large-muscle activity necessary for aerobic training we provided rowing machines, stationary bicycles, and treadmills. Such usage aids cardiovascular fitness and leads to increased endurance. For strength we had a Universal Gym apparatus, which uses a variety of exercise stations with adjustable levels of resistance to improve muscle tone in particular parts of the body through low-weight, high-repetition exercises. Stretching, for the sake of flexibility, just needed a sturdy floor mat. Racquet sports are especially useful for developing coordination, but one of the simplest of fitness machines — the jump rope — is also good, and given the layout of the center was obviously more feasible. All of this activity was also expected to reduce weight and blood lipid levels, thus enhancing “metabolic fitness.”

Since employees have begun regular use of the exercise area, a few things have become evident. As we had suspected, the mere availability of good equipment does not necessarily lead to fitness. Continual support by a trained physical educator, especially on a one-to-one consultative basis, seems vital if a program like this is to survive and grow. At present, employee participation seems to have fallen off by about one-third. We need to develop strategies to keep people motivated. Something we haven't done yet,

but which I would like to see happen, is to promote group exercises, such as aerobic dancing, where people can encourage and reinforce each other's participation.

Despite concerns like these, the NFPA seems to be quite pleased with its corporate fitness program. The cost has turned out to be only about \$300 per year for each employee involved, little enough to spend when one considers the expected present and future benefits. The most noticeable effect after six months of operation has been weight loss — often measured in inches rather than pounds. And a few very quiet female employees have proved to be extremely assertive at the exercise stations of the Universal Gym. Sound-proof walls notwithstanding, other tenants of the same downtown office building have been curious about the NFPA's scheduled interruptions of sedentary office life, and the facility is now open to them on a selective basis. Executives have been so impressed by employee interest and improved morale that they are now planning a fitness package and demonstration at their annual meeting, which will include a “fun run.” In addition, the blueprint for their new, forty-acre corporate headquarters in Quincy, Massachusetts, includes a deluxe fitness center that we have helped plan. There will be space for volleyball, an upgraded exercise area of the type already described, and a mile-long running/cross-country ski trail that will be open to residents of the area as well as NFPA employees.

At this stage, after a year of experience, trial, and error, and continuing good support from NFPA, some important lessons have been learned. It is possible to put together a fine facility which will accomplish most health and fitness goals, and to do this using off-the-shelf components at a price that makes it practical for even smaller businesses and organizations. We are currently working on a program for a local police force of twenty officers, and the anticipated per employee cost is about the same as for the NFPA. Although it is obviously too soon to measure the real effects of this program on the health of the employees, the physiologic, and more recently, the epidemiologic evidence (as documented by Paffenbarger) now seems to support the healthful merits of exercise. And those of us lucky enough to exercise regularly know, with the certainty of “born-again” religionists, that it is beneficial to one's physical and mental equanimity.



The Physiological Response

An update on our expanding knowledge of human performance

In the first half of the twentieth century, such great scientists as August Krogh of Copenhagen, A.V. Hill in England, and the investigators of the Harvard Fatigue Laboratory searched out knowledge of human performance and trained many to follow in their footsteps. In so doing they founded the field of exercise physiology. The work of that era tended to overshadow the advances since 1950; yet research has continued to answer questions about the effects of exercise on the body.

Defining mechanisms by which endurance exercise is limited and clarifying the actual processes of exercise conditioning have been the most impressive advances in recent years. Two common expressions of human performance are maximal working capacity and endurance time. Maximal working capacity is the peak rate at which oxygen can be consumed during exercise, and endurance time the duration that a work intensity can be sustained before fatigue. A work intensity of 100% of maximal has an endurance time of about 5 minutes, while at 85% maximal the endurance time extends to 30 minutes. Endurance exercise — including jogging, bicycling, swimming,

and marathon running — is in the range of 70 to 85% of maximal.

The body responds positively to exercise conditioning. Increases in both maximal oxygen uptake and endurance time are due to changes in the muscle cells, the cardiovascular system, and the neuroendocrine system. Recent advances in biopsy and analytical techniques and hemodynamic measurements have clarified these mechanisms.

Glycogen, a complex carbohydrate, is one of the most important substances to be identified as having an effect on endurance. The apparent dependence upon stored glycogen is only present in endurance exercise that is 70 to 85% of maximal. The longer the duration of exercise, the smaller the concentration of glycogen becomes; moreover, leg fatigue coincides with depletion.¹ The rate of disappearance accelerates with increasing intensities of work.

Special high carbohydrate diets increase the levels of muscle glycogen (referred to as "packing") and enhance

the endurance time. (Figure 1) Exercise conditioning not only increases glycogen concentrations, but also slows the rate of glycogen loss. (Figure 1) These observations strongly associate glycogen utilization and improved endurance.

Glycogen breakdown results in lactate accumulation in the blood, although an excess of lactate does not contribute to fatigue during prolonged exertion as was previously thought. The lactate level is quite high after 5 to 10 minutes of sustained exercise, but at fatigue the concentration is low. The level falls as exercise proceeds, since lactate is cleared from the bloodstream, and glycogen, the principle source of lactate, is depleted. The most plausible hypothesis then is that muscle glycogen is necessary for endurance work, and its absence leads to fatigue.

Improved working capabilities after exercise conditioning cannot be explained solely by changes in muscle glycogen. The concentration of enzymes of the oxidative pathways increase, and the volume of mitochondria

Howard Hartley, M.D., associate professor of medicine, recently moved from the Beth Israel Hospital, where he was director of the exercise laboratory, to the Massachusetts General Hospital, where he now heads the cardiac rehabilitation laboratory. Besides being a three to five mile a day runner, he is an avid cyclist, and rates canoeing as one of the athletic activities he enjoys most with his family.

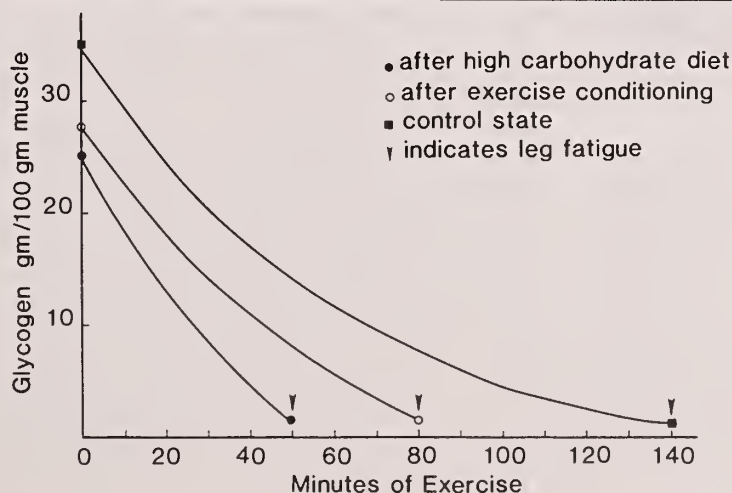


Figure 1

dria expands.² The increase in oxidative potential that accompanies these changes is quite significant for performance. Oxidative metabolic processes more readily produce high energy phosphate compounds, and utilization of those oxidative pathways would be expected to spare glycogen.

Among the most marked changes are those that occur in the structure of the muscle fibers. Muscles consist of red, white and intermediate types of fibers. (Figure 2) Red fibers are rich in oxidative enzymes, with high concentrations of myoglobin, and single red fibers have slower twitches when stimulated than do white fibers. Intermediate fibers are functionally between red and white. Endurance athletes have higher percentages of red fibers than either non-endurance athletes or nonathletes.³ Even with a regimen of exercise conditioning, the percentage of red fibers does not significantly increase over a few months. Cross innervation of muscle fibers in experimental animals has converted the white to red fibers, but it is not certain if conditioning induces similar changes.

The devoted athlete will always point to the numerous cardiovascular benefits of aerobic exercise. The dramatic changes of the cardiovascular system are for many a benchmark against which to measure fitness. In experimental animals the heart increases in size, vigor of contraction, efficiency and resistance to hypoxia.⁴ The coronary vascular bed expands with exercise conditioning as well. Humans develop impressive alterations in cardiovascular function, but whether these are due to better myocardial performance has not been determined. The stroke volume of the heart increases, and the maximal amount of cardiac output per minute is greater.⁵ (Figure 3) Obviously a better functioning heart has the potential of increasing oxygen supply to exercising muscles.

Greater muscle blood flow is possibly due to better cardiovascular function, although a larger vascular bed may be a contributing factor as well.⁶ Both increased flow and the larger capillary bed make oxygen more available to the exercising muscles.

Least understood, and possibly the most crucial link involved in the

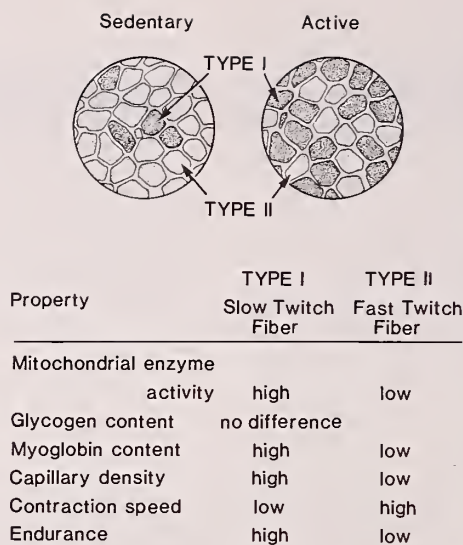


Figure 2

chain of adjustments brought about by exercise conditioning, is the nervous system. After strenuous activity, definite shifts have been detected in the chemistry of the brain in experimental animals. Such changes may be related to the sense of well being that exercise often engenders in humans. The function of the sympathetic nervous system definitely is altered after exercise conditioning. Norepinephrine, the sympathetic nervous system neurotransmitter, is released into the bloodstream to a lesser extent.⁷ This may be a manifestation of nervous system response, although the exact mechanism is not known. Since norepinephrine activates the muscle enzyme phosphorylase, which catalyzes glycogen breakdown, a lower concentration of norepinephrine may lead to less lactate concentration in the blood, slower consumption of stored glycogen, and ultimately, more endurance.

A final note concerns heredity. Although maximal oxygen uptake can be increased by regular exercise conditioning, a major determinant of the value in any individual is one's unique genetic make-up. Nevertheless, exploration into muscle cellular function and into the systems influencing the cell has opened new directions of research. In addition, scientific discoveries are being translated into practical methods to improve our physical capabilities.

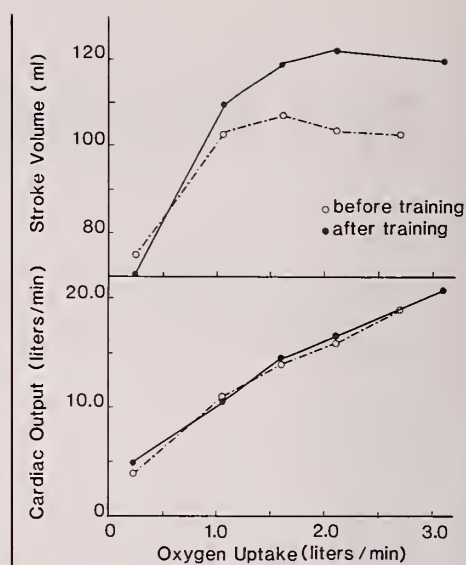


Figure 3

References

1. Bergstrom, J., Hermansen, L., Hultman, E. and Saltin, B.: Diet, muscle glycogen and physical performance. *Acta Physiol. Scand.*, 71: 140, 1967.
2. Holloszy, J.O. and Booth, F.W.: Biochemical adaptations to endurance exercise in muscle. *Ann. Rev. Physiol.*, 18: 273, 1976.
3. Gollnick, P.D., Armstrong, R.B., Saubert, C.W., Piehl, D., and Saltin, B.: Enzyme activity and fiber composition in skeletal muscle of untrained and trained men. *J. Appl. Physiol.*, 33: 312, 1972.
4. Scheuer, J.: Physical training and intrinsic cardiac adaptations. *Circulation*, 47: 677, 1973.
5. Hartley, L.H., Grimby, G., Kihlborn, A., Nilsson, N.J., Astrand, I., Bjure, J., Ekblom, B. and Saltin, B.: III. Cardiac output during submaximal and maximal exercise in middle-aged man before and after physical conditioning. *Scand. J. Clin. Lab. Invest.* 24: 335-344, 1969.
6. Saltin, B., Blomqvist, G., Mitchell, J., Johnson, R., Wildenthal, K., and Chapman, C.B.: Response to submaximal and maximal exercise after bed rest and training. *Circulation*, 38: (Suppl. 7), 1968.
7. Hartley, L.H.: Growth hormone and catecholamine response to exercise in relation to physical training. *Med. and Sci. in Sports*. 7: 34-36, 1975.

SPORTING LIVES

Being curious about the fitness habits of our readers, we mined the *Bulletin's* rich vein of Alumni Notes for likely subjects. We were in search of people who pursue — sometimes passionately — one brand or another of physical activity and we asked them what they do and why. To those broad questions we received some provocative true confessions.

Willard Mark Twain
Dalrymple '46 once said that he owed his success to doing two things every day that he disliked doing: getting up in the morning and going to bed at night. So it is for most of us with exercise, at least the kind of regular, frequent, vigorous exercise necessary for cardiovascular fitness. Except for the most severely compulsive, there are going to be at least two or three days each week, or one or more months each year, when swimming or running or bicycling or even keeping that tennis date is really burdensome, and most of us fail from time to time.

I am no exception. Although I am one of those who has acquired the reputation for perpetual fitness, the fact is that probably no more than seventy-five percent of the time since secondary school has my exercise program been sufficient to produce a distinct training effect. For years I ran, then bicycling became my chief exercise involvement; finally I have favored swimming, which I find more pleasurable and easier on my Achilles tendons, which object unpleasantly to my running on hard surfaces.

For the last several years that I was director of University Health Services at Princeton, I was a

member of a 6 am master's swim program (translation: swimming for the elderly), but my attempt to become 28 again by means of my current residency in psychiatry has absorbed much time, so swimming has become a six month program in my home pool; I have a stationary bicycle for the winter exercise program. My aim is to exercise vigorously for at least half an hour at least four or five days a week; such programs have been codified by Cooper, but the basic principles were established with work done on some of my generation at Harvard College by Lucien Brouha and others at the Harvard Fatigue Laboratory.

The studies that show protection against cardiovascular disease from regular exercise are persuasive to me. Furthermore, I have convinced myself that I feel more energetic, more cheerful, and less needful of sleep when exercising regularly. I suspect that the older one gets the more helpful the training effect of regular exercise becomes. For myself, exercise has contributed importantly, and probably will contribute with increasing importance over the next two or three decades, to the set of balances that make human life enjoyable and worthwhile.

Ben T. Chaffey '60 Sports have given me more tranquility and pleasure than any other activity over the years. They reduce the complexity of life to a simple format of challenge followed by success or failure. Failing or losing is still associated with a rejuvenation that is totally different from the depressing character and moral significance of failure in other aspects of one's life. The ephemeral nature of the sports experience permits — and even demands — the repetition of the refreshing cycle. Outdoor sports such as hiking and camping provide an opportunity to study the nature of human existence.

Competitive tennis was my major interest in my teens. At HMS I began bicycling to class, and, although I still play tennis and squash, bicycling is my favorite sport. The freeways have concentrated cars and people, but there is an increasing amount of uncluttered road available for cycling. I still use the bike I bought used at HMS and put up to 3000 miles a year on it.



Ben Chaffey: the relaxing nature of the activity itself.

For me the issues of decreased ASHD, increased HDL, decreased cholesterol, increased fibrinolysis and the like are secondary. I enjoy the aesthetic and stimulating yet relaxing nature of the activity itself. The pleasure of hard physical work with its associated sweat, dyspnea, and exhaustion is easy to experience, but difficult to describe. I recommend it.



Paul Spangler: the thrill of competition and the joy of running.

Paul E. Spangler '23 I started jogging about fifteen years ago, at age 67, as a preventive measure against coronary heart disease. I felt that although I was starting rather late, a vigorous program of the known measures to minimize the development of atherosclerosis would still be beneficial in slowing down the progress of the disease.

Over several years I gradually increased my distance and pace, and as my physical condition improved I began to run some road races. Four years ago I was introduced to masters track and field competition. Since then I have been fairly successful in age group competition. I currently hold the world record for the marathon, age 78 and 79, 4:06 and 3:59. I won the 5,000 and 10,000 meter races at the last world masters meet held in Gothenburg, Sweden in 1978 and was second in the marathon and 10,000 meter cross-country, age group 75-79. I am the present national AAU champion for these events. I hold quite a few other age records at lesser distances.

I am now campaigning in a new age group (80-84) and my goal is to set new world marks in all running events from 100 meters to the marathon. I have so far set new indoor marks at 600 yards, 1,000 yards, 1 mile and 2 miles at the AAU masters indoor championships at Ann Arbor in March. Outdoors I set new marks at 100,

400, and 800 meters. I missed the 200 meter record by .9 second. I will get that later. I set a new world mark at age 80 at this year's Boston Marathon, 4:23, which is pending.

I have been honored two times by Track and Field News by being selected as master runner of the year, age group 75-79. Last December I was one of the finalists considered for the outstanding master runner of the year by Runners World at their national running week Nurmi award banquet.

Why do I run? First for physical fitness and longevity. The masters competition has become a big part of my life. I enjoy the thrill of competition and the joy of winning. The camaraderie experienced is tremendous and very rewarding. My health has never been better. There is a new zest for living. Athletic achievement, denied me in my youth, coming in my declining years is gratifying to say the least. My life is so changed that I am miserable if I am not able to get my 5 to 10 miles in every day. It has become for me the only way to go.

One final word. "Anything I can do you can do better," to paraphrase an old song. Everyone needs regular aerobic exercise if at all possible. It is never too late to start. Maybe walking is the most one can do, but at least do that. Physical fitness can be acquired by any exercise that will get your pulse rate up to 180 minus your age and keep it there for twenty minutes. We must get people away from the television, out of the rocking chair, and onto their feet and moving if we are going to make inroads in our war against coronary heart disease.

Eric Sanderson '37 Decimus Junius Juvenal (A.D. 50-130) wrote, "You should pray for a sound mind in a sound body."

Prayer alone won't do it. You need good genes, good luck and, possibly, aerobic exercise. When I feel the need to flush the debris out of the old capillaries I dust off my stationary bicycle and pedal away, whilst counting the pulse and wondering whether those are pvc's or did I just miss the count.

Golf is my real bag. It's not very good exercise, and it is not very much fun. Actually, it is a form of self-torture. You need three other masochistic jocks playing for a dollar Nassau to get the full effect of the game. A round of golf then serves as a sort of mini-vacation that takes you away from the tensions and frustrations of medical practice, which you try to solve at an intellectual level, and deposits you among other tensions and frustrations, which you try to solve at the gut level. Twice a week is about all I can stand of golf.

Prescription for Golfers

So you lost your match and your game was rotten?
A couple of beers and it's all forgotten

On days like this, when the game is through,
You swear you'll quit, but you never do.

The pain subsides as the scores are totted
And you sit there quietly getting potted.

A funny game golf is, I think.
The hell with it. Let's have a drink.

Let's put an end to this day's sorrow
And tee it up again tomorrow.

Eric Sanderson

John C. Wilcox '34 Being philosophically oriented toward believing that effort and action are most laudable when they produce tangible results, I suppose I never have been "standard" in my choices for physical exercise and/or sport, although I've tried most kinds of both. When I walk I want to arrive somewhere other than my starting point. When I work up a sweat by swinging an instrument through the air or by straining to lift heavy objects I want to see a stack of firewood or a pile of rocks result. Golf, jogging, tennis, weight-lifting — and the rest — cannot satisfy these criteria. Besides, the torn medial menisci that I have had for many years prohibit my participating in any "fitness" activity that requires agility, quick starts and stops, or pivoting.

For thirty years my "Wednesday afternoon golf game" and my "weekend tennis match" have been the development and maintenance of the untamed mountain acreage where we now live, and the reopening, with shovel and wheelbarrow, of a genuine lost and "secret" gold mine. In the process I have become, along with being reasonably fit, quite competent as a plumber, carpenter, mason, ditch-digger, rail-splitter, and snake-skinner. But I do miss the old days of handball! With different knees, *that's* what I'd do now.



Kathryn Zufall-Larson: the satisfaction of "conquering" a mountain.

Kathryn A. Zufall-Larson '75 Much to my surprise, I have over the past few years taken up mountain climbing. It began in earnest when I married my mountaineering-fanatic husband, Eric Larson '73. We began our marriage by splitting our honeymoon between a lovely island cabin (my half) and five days of climbing lessons (his half).

Why should anyone want to perch on the edge of a cliff or risk falling into a crevasse? Sometimes I wonder! Although my initial motives for climbing were social (zip-together sleeping bags and enough food were more important than getting to the summit), I have now begun to see why people love to climb. It is very satisfying to "conquer" a mountain, and the view from the top is well earned. The scenery is spectacular in the Pacific Northwest as long as it isn't raining. It's great to be out in the mountains for a few days too, well away from one's usual life.

This year I have enrolled in a climbing course of two hundred in Seattle. The course is so popular that people are turned away. I am learning how to climb safely and how to get more confidence on those scary rocks! I will never be an aggressive climber, but I do enjoy the added dimension recreational climbing gives to one's experiences in the mountains.

J. I. Frederick Reppun '39 Fitness? Baloney! What a waste of time!

As an active physician in family practice, I preach fitness to my patients constantly: "And what do you do for exercise?" I ask men and women when I do their annual physicals. But, I don't have time for it myself.

Driving five miles to and from the office every day, I see on the edge of the road the strained and pained expressions on the faces of the weary and obsessed runners and joggers, male and female, whose tissues, young or old, jiggle and sag, whose bones and joints pound and jar, whose extremities flail the air and whose eyes look straight ahead. Seeing no one and probably purposefully avoiding eye contact with me, they won't have to interrupt the intensity of their concentration and effort by waving at me in return for my passing greeting.

Homo sapiens is endowed with a great brain — even the least of us; we should be using it more. Leave the running to the cheetahs. "Life is short" — why try to lengthen it only to end up an invalid in a depressing nursing home? Is it worthwhile to become a nonagenarian? "The art long" — why not spend time instead in learning more of the art? "Experiment perilous" — trying unnaturally to be a gazelle certainly is! "Occasion instant and decision difficult." — Ah yes. Why worry? Why all the strain and pain?

Running may clear your pipes and extend the longevity of your cardiopulmonary system, but it may also be hazardous to your peace of mind!

Carleton B. Chapman '41 I'm a jogger — and have been off and on (mostly on) for twenty-five years. I got into it long before the current craze hit the country. As a matter of fact, my great and good friend the late Dr. Paul White and I plugged jogging and bicycling — mainly through the American Heart Association — a decade or so before the thing caught on. In addition, I was all the while working on the physiology of physical stress in my own laboratory at Southwestern Medical School.

All that was well before the word *aerobics* became current. I'm not at all sure, looking back, why the exercise mania caught on as and when it did. But I'm decidedly uneasy about the claims now being made for it. I'm not sure, for example, that regular exercise *per se* will increase one's potency, life span, or specifically protect one from degenerative cardiovascular disease. The evidence in favor of such claims is still not very convincing to me. But I am sure — reasonably — of three things: you feel better if you exercise regularly; you're more likely to survive having been significantly active rather than acting on the witty but irresponsible quips in praise of inactivity.

SPORTING LIVES

Arnold Neistadt '60 I have long been interested in physical fitness. My primary activity has been swimming, which I first pursued competitively in college. Ten years ago we purchased a home swimming pool so that we could swim on a regular basis. Since that time I have swum a minimum of five times per week. Up until 1976 I swam approximately one quarter of a mile per session. That year I was diagnosed as having arteriosclerotic heart disease with angina pectoris and underwent triple coronary bypass.

I have a strong family history of coronary artery disease, with both grandparents dying at very young ages of heart attacks. I have never smoked, been hypertensive, or overweight. I feel that my swimming helped to keep me alive to a point where I could undergo coronary bypass. Since then I have increased my endurance and I'm up to 100 laps per day which is the equivalent of 3/4 mile. I am now in the best condition that I have been in since college.

My interest in water sports also extends to scuba diving. I have been diving for eight years and as far as I can tell, I was the first person to go scuba diving following coronary artery bypass surgery.

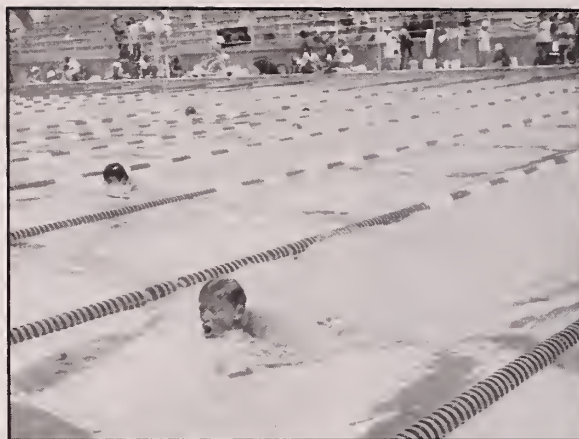
Ransom Arthur '51 I have been interested in aquatics from a very early age. I was taught to swim at five by an Olympic champion who helped further my enthusiasm. Over the years I have swum regularly, except for the time when I was a student at Harvard Medical School and subsequently an intern and resident. Although I was able to swim occasionally at that juncture, regular workouts were not possible. From boyhood on I have taken part in related aquatic activities such as sailing, body surfing, and board surfing. I swam competitively before and during college, and while on active service in the Navy Medical Corps, I both coached and swam. Over the years we competed in Naval district meets, Pacific Coast championships and several All Navy championships. The participation as well as the coaching of athletes were extremely satisfying activities.

In 1970, with the help of John Spanuth, who was to become the aquatics director of the National Amateur Athletes Union (AAU), I began the national masters swimming program, which subsequently affiliated with the AAU. Essentially, the masters program provides competitive motivation for individuals in adult life to continue swimming and diving. The age groups involved begin at 25 (except at the local level where there is an informal 20-24 year old group) and are divided into five year segments: 25-29, 30-34, ad seriatim up to 80, at which time the groups become ten years long. The latter point might seem theoretical since we have had two 91 year olds compete in our meets and a fair number of 80 year olds. The masters program has two national championships a year, a short course (25 yard) meet in May and a long course (50 meter) pool competition in August or

September. All four strokes and individual medley events are included in the competition and the distances swum range from 50 yards to 1 mile. As many as 800 people have competed in some of our championships and many of the times turned in by individuals over 40 have been astonishing, particularly when compared to swimming standards of several decades ago.

There is also competition at the regional and local level, with monthly meets held in some areas. There are masters swimming teams in all regions of the United States as well as in Japan, Australia, New Zealand, England, Germany, Canada, South Africa, and Scandinavia. The program seems to be accomplishing its purpose of promoting adult physical fitness. It is difficult for most humans to continue a regular exercise program, particularly one as lonely as swimming, without some goal other than general fitness. By the motivational spurs of pleasurable competition and tremendous good fellowship, the masters program helps keep people exercising year after year.

My own motivation for continuing to swim regularly all these years is that, at bottom, I like it. I have always enjoyed the clarity and feel of the water, and I find the actual doing of the swim pleasurable in itself. Naturally, I am delighted that physical fitness accrues from swimming. However, even if I knew it were deleterious to my health I might just continue to do it anyway! I also enjoy competition *per se* and the camaraderie that is an integral part of the various swim programs in which I have participated. Both Navy and masters swimming have given me a great deal of satisfaction over the years and I am delighted to have been able to contribute something to the progress and perhaps the health of other people.



Ransom Arthur: the motivational spurs of pleasurable competition.

G. Colket Caner '22 We had a tennis court when I was growing up because my mother rather favored this sport, and I was always the most athletic of my family. At Harvard College I was the intercollegiate champion and as such went to England where I and Dean Matey, who played for Princeton, teamed up and got to the semi-finals at Wimbledon. My specialty was long ground strokes. I played a hard driving game and thoroughly enjoyed myself.

Charles H. Lasley '47 I have held the belief since childhood that we should, as George Sheehan quotes Emerson: "First be a good animal." To me this means daily maximum physical exertion. By physical performance we create what we are as much as by any other influence. Physical conditioning molds our reactions and shapes our character and our destiny.

As a devoted handball player and only a sporadic and unenthusiastic runner, I became aware three years ago of the power of distance running. I learned the value of sustained aerobic exercise. I run now as an addict, 30 to 50 miles a week. I run for fun. I run to compete. I run without invitation. I've run all distances from one mile to marathon. I run to live. Running enhances my enjoyment of life, restores my soul, reaffirms my faith, and rejuvenates my body.

Like the Spanish corrida there is a maximum emotional span involved in a race, from the

terminal depths of agonizing performance beyond the anerobic threshold, to the heights of victorious super-achievement and awareness of super-health.

Running teaches you more about your own body than most sports. The effect of diet is clearly noticeable. Weight-bearing mechanics must be analyzed and corrected. Just the awareness of your own slow pulse reflects the equanimitas of the runner. I am convinced we've been working at the wrong end of disease in medicine today. I have become evangelistic in advocating a high-fiber, low cholesterol nutrition program and distance running for my patients as well as myself. Like the practice of medicine it makes us better human beings than we would have been otherwise. Running will change your life. Do it.



Charles Lasley: the equanimitas of the runner.

S. Harold Reuter '59 Relaxed and enjoying a state of euphoric weightlessness, my eyes survey the vastness of the underwater seascape. As I examine the passing kaleidoscope of colors, I find myself savoring the visual and sensual pleasures of being in another world and another time. A place untouched by the progress of modern man; a place where tiny sea animals patiently build their coral reefs throughout the centuries, completely ignoring the passage of time. The clamor of civilization gives way to the soft and gentle sound of slowly rising bubbles from my breathing apparatus. I am floating in the innerspace of another world, a modern intruder in an ancient place.

The intricate beauty of the subsurface shapes and colors first captivated me on a glass-bottom boat trip in Jamaica. On my return to Houston, I enrolled in a diving course at the YMCA and became certified in scuba. The pool training permitted me to pace myself; consequently, I was in competition only with my previous achievement. This is the basis of the challenge and satisfaction of the sport.

As an otolaryngologist, I had a natural interest in the medical aspects of scuba diving since ninety-five percent of common medical problems are ear, nose, and throat related, especially associated with the Eustachian tube.

My most memorable scuba experience of the past year was being the diving buddy of Captain Jacques Yves Cousteau. He had contacted me for permission to publish my "No-Calculations Simplified Linear Dive Tables" for the sport scuba diver in his *Encyclopedia of Diving*. The tables are a simplified tabular guide for underwater depth and duration, to prevent the fatal bends.



S. Harold Reuter: in competition only with one's own previous achievement.

H. Clement Jurgeleit '66 Upon moving to Bangor, Maine about five years ago, I found it a lot easier to get involved in outdoor sports than when living in metropolitan areas. With the irregular and unpredictable hours of a surgical practice, the immediate availability of downhill and cross-country trails, ice skating ponds, camping and hiking areas, and both white and flatwater canoeing enabled me to become and stay active.

Spring is the time of "white-water fever." As soon as the ice goes out of the rivers and streams in late March-early April, canoes start to appear on cartops in place of skis. The Penobscot Paddle and Chowder Club organizes white and flatwater trips all spring and summer — at least two each weekend. Of course the best whitewater is in the spring. The annual Kenduskeag Stream Race in Bangor in mid-April is a great local event — about 250 canoes, down a 16 mile course with the "whole town" turning out at the "crucial" falls to watch the flips and dunkings — the local rites of spring. This was my fourth year in it. I canoe purely for the pleasure of the sport (as do most of the participants); I have a recreational style canoe and can't hope to challenge the racers.

I pursue all outdoor sport activities for enjoyment and diversion. They seem to provide a greater break for me from the intensity of clinical medicine than the more quiet forms of recreation.

L.J. Courtwright '29 I have had essential hypertension since the age of 40. At the present time, age 76, I am taking Inderal (10 milligrams only) T.I.D. My blood pressure varies from 175 over 80 to 160 over 80. If I take no Inderal, it climbs to 190 over 90. At 5 feet, 7 inches in height, I keep my weight at 140 pounds, waistline at 35 inches.

Truly, I find joy and relaxation in the freedom of vigorous body movements in 88 to 90 degree water while doing my daily swimming, 1/2 mile, aerobic time. The decrease in body weight does give a feeling of lightness and youth. It is also a good place to pray and to do biofeedback in regard to muscles, heart, circulation and breathing. The body in rhythm joins the mind and soul in more conscious union in the water.

When swimming on my back, I revel in gray and blue skies, in storm, rain, and sometimes snow. I look out on the green of complementary nature, and on the many forms of man's work and dreams. My hearty friends, I suggest that you look deep within, and outward toward the stars, while traveling toward the middle ground. My still active, four days a week practice on the objective middle ground keeps my mind alert.

Joan Lamb Ulliyot '66 I started running in 1971 for the same reasons that motivate most beginning joggers — health and appearance. At 30, I had a growing problem with "middle-aged spread." Now at 38 I'm a marathoner (2:51:15 best time for 26 plus miles). I'm also slimmer and fitter than at any other time in my life. It's a great experience to be able to outrun my own sons, who are now 10 and 12! I still run 5 to 10 miles daily, mainly for pure enjoyment. The scenery here in San Francisco is magnificent, and the air is clear. I have a "positive addiction" — that is, if I don't run, I miss the health and good feelings.

I also have had much success in competition, and have been on several national marathon teams competing in Europe. Since woman doctor/marathoners are still rare, I rapidly became an "expert" in sports medicine and women's running. My 1976 book on the subject, *Women's Running* (World), has sold over 200,000 copies to date, and I've temporarily retired from practice and research in fitness and health, to write a second book. Like many other runners, it seems, my life has changed completely since I started. And I was once the least athletic person in my class!



Joan Ulliyot: once the least athletic person in her class.

Ridge Trimble '73 One of the less pleasant aspects of my residency training was that I usually lacked time or energy for exercise. Now that I'm done with my training and have more leisure time, I try to play tennis three times a week, which allows me to keep up my skills and perhaps improve a little. I play for fun mostly, but I also enjoy meeting nonmedical people through the game.

I run a mile or so once or twice a week after work when I haven't got much time. I enjoy running about as much as brushing my teeth, but it is good quick exercise. Long distance running has no appeal for me; I'd just as soon stay on this side of the pain barrier. My "aerobic" status is Cooper's Class IV, able to run 1.5 miles in 12 minutes (barely).

Joseph W. Ferrebee '34 Fitness, hey. For what? Work? No way. For longevity? Six more years of senility? You're kidding. The thing smells of narcissism and neurosis. My exercise, you understand, night and morning for nigh seventy years has been for orthopedic or other sound reason — not always my own. My father learned early that he could breakfast in peace by having me run around the block before I got mine.

"Mens sana in corpore sano," my boy. Phooey. Where does exercise get you? Well now that you ask, tired old legs instead of just old legs. Me, I got a horse. Trouble is, nobody seems to want to die of anything. There's even talk of immortality and living with your family through eternity. Fifty years and still no change? Sounds unnatural. One run will do me.

So it's up to the high-country while I can, with old Todd, the gillie-dog, to point the rise and land the fish, and young Huck to hold the point on the nervous bird. "Ave."

James G. Bennett '39 I eased into running gradually, having decided at age 37 to learn fencing and later to become somewhat more serious about tennis. I was so impressed with the fitness level of an Olympic fencer who defeated us all easily in open competition that I began running several laps around a nearby playfield in Seattle on Saturday afternoons in partial emulation of his training program.

When Ken Cooper's *Aerobics* appeared in 1968 I was 53. Weekend jogging was no longer enough. I increased my mileage to about 14 miles a week, running almost daily, and later to about 25, my present level. Virtually all of this is done in 5 or 6 mile units between home and hospital. Although the Waikiki foot traffic is sometimes a bit heavy, I have both cheap transportation and a partial saving in exercise time. Trips in the opposite direction are frequently by bicycle.

Subjective benefits of increased well being and sounder sleep quickly followed by adoption of the Cooper aerobic training program, and justify what is for me a considerable expenditure of effort and definitely not unmitigated pleasure. I hope that coronary heart disease may be avoided, delayed, or better withstood, and that longevity may be increased. These may be vain hopes, as Lewis Thomas will tell you. Their probable validity seems attractive to me; to wait for their certainty to become manifest may be too late.

The temptation to compete proved irresistible and has led to age-group Hawaiian records in



James Bennett: running is the way to a better life.

the marathon, the decathlon, and other events. My best race was in Honolulu in April 1976 — a 5000 meter run. My finishing kick fell inches short of overtaking Shojo Murai of Japan, although we were both clocked at 20:46, a 6:40 per mile pace.

Even more memorable was the Boston Marathon of April 1977. The road from Hopkinton to the Prudential was anything but lonely for this long distance runner. There was ample time and energy for chats with fellow runners from Canada, Florida, and elsewhere. The cheers of the Wellesley girls fell on the ears of young and old alike, lifting our spirits, and helping to ease the pain of enlarging blisters.

Running, for me, is not a way of life, but the way to be a better life, one of several lifetime habits along with dental hygiene nutritional hygiene, and mental hygiene.



Ira Davidoff: the mystical qualities of mountaineering.

Ira G. Davidoff '70 "It belongs to that queer animal man alone, to toil up steep and perilous crags, to arrive at a bare peak, to sleep ill and fare worse, and then the next day to descend and call this a feast."

Mountaineering has mystical qualities for me. It has given me a keen appreciation for living by allowing me to face the possibility of my death with equanimity, and by illustrating with stark and rugged beauty the insignificance of man in the natural order of things. People have peak experiences in a variety of ways. There is nothing like having spent two days at 17,400 feet on Mount McKinley in an unrelenting 80 m.p.h. windstorm, at -10°F. , with 30 foot visibility, to focus the mind. Standing in clear air and sunshine at 19,200 feet in the shadow of Mount Everest allows thoughts to soar beyond the ephemeral present to the eternal cosmos.

Whether it be climbing breathlessly uphill, conquering fear on steep terrain, or being sensorily bombarded by extreme temperatures, storms, magnificent vistas, or the noise of my own breathing disturbing the silence, mountaineering provides sustained and intense experiences wherein my own ego-view recedes into irrelevance, and oneness with the universe becomes apparent.

Tenley E. Albright '61 As my office is near HMS, I

drive by often and *still* can't help thinking how nice it would be to have an ice rink conveniently in the center of the Quadrangle.

I had seven interviews for the Medical School, perhaps partly because I applied for admission after three years at Harvard-Radcliffe — and there were only five girls in a Medical School class of 135 then — but mostly because skating was thought to be so frivolous.

One of my warmest memories of Medical School was in the second year when my classmates filled the whole end section of the Boston Garden and stood up to greet me as I came on the ice in "Ice Chips," and having Dr. Augustine, helminthologist, who taught my father (Hollis L. '31) and me, come backstage.

It is great to talk about sports in medical school, but it is something else to make time for any. It was unnerving to see almost every light in every room on all night at Vanderbilt. It took me almost two years to realize that most students slept with their lights on!

I continue to skate because it is part of me — it is a joy to be on the ice. Aside from my main interest in surgery, skating and medicine have blended in some of my professional commitments, such as medical consultant to the President's Council on Physical Fitness and Sports; executive committee of the US Olympic Sports-Medical Council; Sports Medical Resource, Inc., Boston, (founding member); officer of the US Olympic Committee; and director for Advanced Medical Research Foundation. And my Olympic committee work has put me in close touch with Dr. Irving Dardik, so that we now have successfully used the new umbilical vein bypass biograft for arterial reconstructions.



Tenley Albright: a joy to be on the ice.

William R. Owen '49 My embryonic efforts in tennis began on the court at Vanderbilt and at the Massachusetts General Hospital during residency days. But my real interest began at the age of 45. Tennis has the advantage of a stratified competitive program based on age. By 45 the college varsity players have aged enough to make them more even competition and others have been slowed a bit by difficulties with back, knees, and assorted orthopedic ailments.

The American Medical Tennis Association, which involves around 3500 physicians, including many Harvard Medical alumni, has added to my interest in recent years. Meetings are held six times annually throughout the US for CME credit, along with tennis for members and their spouses.

Though fitness is a major by-product of tennis, it constitutes the sort of exercise and conditioning that I feel is most palatable since it is mixed heavily with pleasure. Physical demands of the sport are modest when one plays in one's own age group, and sufficient to be a major plus in improving fitness. Success has been pretty good with state rankings as high as number three and progress to the semi-finals at the National Open at Forest Hills in 1976 in father-daughter mixed doubles.

Eugene A. Gaston '32 The request for comments

on my physical fitness arrived when my wife, Helena, and I were pedaling our tandem through the bluegrass country of Kentucky, and the Smoky Mountains of Tennessee and North Carolina. On April 27 we had flown out of Boston in a cold, drenching rain and landed in Louisville, where the grass was green, the trees in full leaf, and the dogwoods and azaleas competed for attention. For three weeks we bicycled along the back roads of this beautiful part of the world when it was at its annual best, accompanied by twenty-four other members of the International Bicycle Touring Society (IBTS).

The IBTS, which has about 800 members, was founded by Dr. Clifford Graves, a surgeon in LaJolla, California. Twenty-four tours, nine overseas, were available in 1979. The daily rides average about 50 miles but vary from 30 to 80 miles depending on the availability of suitable hotels or motels. Baggage is carried in the "sagwagon," a van or station wagon that is also used for rescue in case of breakdown of bicycle or rider. In states cursed with "dry counties" the sagwagon often carries a cooler of iced beer and other rejuvenating liquids that aid revival following days of healthful, but vigorous, outdoor exercise. Members come from all walks of life but, for reasons that are not clear, include a plethora of doc-

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tors and pilots, air traffic controllers and others connected with commercial aviation.

Helena and I have enjoyed seventeen IBTS tours in eleven European countries, Canada and the United States. Preparing for the next tour stimulates us to stay in shape by bicycling at every opportunity when at home, often with a local bicycle club. Through such contacts we have met some of our dearest friends. Furthermore, bicycling has drawn the two of us together at a time in life when other mutual activities and interests have deteriorated, or grown up and moved away.

Harry C. Lapp '23 Realizing the necessity of

relieving the stress of surgery, I began early in my practice to "unbend the bow." I began to fish for bass. Each summer a group of friends and I spent a fortnight fishing in Louisiana, the high Rockies or Canada. We made a number of float trips down the White River from Branson, Missouri to Cotter, Arkansas using large flat bottom boats that carried all necessary camping equipment and supplies. We floated 140 miles in a week, during which time we saw no bridges, ferries or towns. At night we slept on gravel bars rather than on the mosquito infested shores.

Always, I returned home thoroughly relaxed and rested. Due to advancing age and poor sight my fishing days are over. However, I still like to walk several miles daily.

**Bruce A sports
Reider '75 medicine**

doc? Ten years ago many would have chuckled at the idea. My involvement with sports medicine began with an opportunity to spend a year with Dr. John Marshall on the sports medicine service of the Hospital for Special Surgery prior to beginning my orthopedic residency. That year, divided between research and clinical work, introduced me to the problems of a wide variety of athletes, from professional football players to weekend joggers.

Although the care of the famous constitutes the usual public image of sports medicine, the main beneficiaries of advances in the care and prevention of athletic injuries have been the college, high school, and weekend athletes who form the vast majority of the patients in any sports medicine practice.

Fitness and relaxation are certainly two of the goals of my own athletic participation, and each sport has its own challenges and pleasures. The most recent addition to my dilettante's repertoire is scuba diving. Although not outwardly strenuous, scuba requires a high level of fitness for safe participation — the classic example of a sport that you must "get in shape to play" rather than "play to get in shape." Part of its satisfaction derives from its inherent danger. A tremendous feeling of self-confidence and accomplishment is produced by the mastery of these dangers through the completion of a suitably rigorous instructional course. This physical challenge is complemented by the adventure, aesthetic pleasure, and philosophical perspective produced by the unique opportunity to enter the biosphere of the submarine world.



John Tomasch: golf is a great game.

John M. Tomasch '31 As a physician who has been fully retired for ten years I find that as one grows older, the need for some plan of physical activity combined with a hobby that augments cerebral stimulation is essential for a feeling of continued well being.

It has been my good fortune to be able to combine competitive golf throughout the world with my satisfying hobby of medium-format photography. On a recent trip to Australia and New Zealand my wife and I played ten rugged courses pulling a "trolley"; result — a loss of three inches around my mid-line and ten pounds of "lard."

Golf is a great game. It affords fellowship, muscle activity, and must be played outdoors. It may also provide a lifetime thrill, as occurred to me in January 1977 when I made two holes-in-one on the same day, on the same round, on the same nine — all in competitive play at the age of 70.



Steve Hedberg (left): the uncharted personal exploration of risk factor modification.

Stephen E. Hedberg '55 Until about the age of 45 I never regarded "fitness" as being of any great personal significance so long as I was in good enough shape to enjoy the vigorous sports, hobbies and activities that interested me. Then quite suddenly I realized that cessation of smoking had not been enough: I became aware that the risk factors pertaining to coronary artery disease pertained to me, and became determined to do something about them if I could. In my case body weight, cholesterol, triglycerides, and blood pressure all had to be attacked.

There was plenty of evidence to suggest that weight reduction, dietary change, and hour-long continuous exercise sessions might alter lipid metabolism and the consequent risk factors. I knew of the dispute over whether these factors could be changed significantly. And I perceived a problem that is only recently being discussed widely — namely, whether an after-the-fact lowering of one's risk factors actually lessens one's subsequent risk.

After five years of jogging I can report many satisfactions — some only wistfully hoped for originally, others not even anticipated. Weight down 46 pounds,

cholesterol from 205 to 149, triglycerides down from 150 to 23, and blood pressure 145/90 to 115/70 are changes that move into the range of virtual immunity from CAD as measured by risk factors. Gratifyingly all of these effects were explicable (if not predictable) in terms of chronic changes following long distance running — or any other prolonged, uninterrupted, aerobic, large muscle exercise. Offsetting the still-moot question of whether I've really altered my risk are: felt increases in work capacity, self respect, joie de vivre, self confidence, and the warm sense of knowing that I've done the best I can to preserve the life of the daddy of my young family. Through cajoling, debate, and example I think I may have done the same for colleagues and patients I've persuaded, and this, too, has been a source of great pleasure to me.

It would be uncandid not to confess that although I was a very successful oar at school and college, the peak of my athletic career did come in 1976 when I finished my first Boston Marathon. For me that event was symbolic not of the cardiac immunity that some claim for marathoning, but of success in the uncharted personal exploration of risk factor modification that I had undertaken as a matter of faith so many footsteps before.



Henry Bahnsen: simply to feel fit.

Henry Bahnsen '44 Most of my thoughts about fitness are related to mountaineering or skiing, from whence the interest in mountaineering arose. Interest in skiing developed and waxed while in Medical School and blossomed as a family sport when the kids came along. The mountaineering aspect of it first appeared in 1960 when I had the opportunity to do some high ski touring in Zermatt, and in subsequent years when I toured the Haute Route with John Schilling '40 and Ben Eiseman '43. The first peak of my mountaineering experience was an expedition to Nanga Parbat, in 1977.

In regard to fitness I never paid much attention to it, being always naturally physically active and staying in reasonably good condition. With advancing age, however, it has become necessary to jog or do the Air Force exercises even before a reasonably strenuous skiing trip, if I am going to hold my own with vigorous associates. In preparation for my trip to Mt. McKinley this past May, I jogged 2 to 6 miles most days, up to 15 to 20 miles a week and worked up the scale of Air Force exercises to those for about half my age.

My philosophy is simply to be fit enough to do things I want to do. It is still a grind and almost always pleasant only in retrospect, although on a few beautiful mornings it is pleasant to cruise, especially downhill. I do not know that it makes me feel any better. My thought about that is the same as about cold showers: one has to feel pretty good to want to do it in the first place.



Arthur Siegel (right): from a recreational jogger to a marathon runner.

Arthur J. Siegel '67 My particular recent evolution has been from a recreational jogger to a marathon runner. This has been a constant source of internal gratification as it has occurred without substantial injury, either physical, mental or emotional. Running to and from work (5-6 miles each way) creates a mileage base sufficient for easy marathon participation and fitnesses the hassle of the commute. I call it jogamuting and regard the marathon as a dividend.

I have run in eight marathons in the last three years, and have completed seven, including three Bostons. My best time is 3:01, so I probably shall never overtake Joan Ulyot. A PBBH team of physician-runners (including myself) did win a Medical Institution Challenge Race at this year's Boston Marathon sponsored by the AMJA. Our average time for the first four finishers was 3:04, beating the Mayo Clinic, Johns Hopkins, and several others.

As a general physician interested in assessing the health benefits of exercise, I must say that the long-term impact of strenuous endurance exercise, such as marathon running, is as yet unknown. Dr. Paffenbarger's ongoing study of recreational activity in Harvard College alumni shows decreased coronary risk in moderate exercisers (2000 kilocalories per week), but no further decline with more extreme levels of exercise. Marathon runners approach 6,000-10,000 kilocalories per week. Is there some additional health risk involved in such excesses of zeal?

Mark A. Kelley '73 At HMS, I spent more than a few nights playing hockey at Harvard's Watson Rink. It was a good way to let off steam and I must admit it was exciting to play on the same ice where Bobby Orr practiced and where I witnessed so many college games.

My internship in Philadelphia certainly took care of any extra steam, but I continued to play, more as a means of preserving my sanity. The well-organized intramural league at Penn provided a welcome relief from house officer duties. As my schedule improved, I found I was just as addicted to hockey, despite games at midnight and charges of lunacy from friends and relatives.

In the past few years, our medical school team has become quite competitive and last year won the university intramural championship. I've enjoyed the team's success, but the best elements of the game — the fluid movement of skating and the quick action around the puck — are just as enjoyable in a pickup game on a frozen pond.

I hope to continue playing as long as possible, until I'm either worn out or grown up (which I hope is never). Besides, hockey still provides its thrills. The dreams of emulating Bobby Orr have been replaced by visions of a 32 year old being able to keep up with 18 year old intramural hotshots. Right now, I'm not sure which dream is more fantastic.

Norman L. Wilson, Jr. '63 As a young lad I used to dive in Lake Erie (wearing only a face mask, fins, and sometimes swimming trunks) to watch the perch, bass, and various species of pike feeding and swimming around old submerged piers. At that time I became quite intrigued with Jacques Costeau's development of scuba, and I was hopeful of learning to use it to easily explore exciting and beautiful coral reefs and their associated fauna. Getting certified (in 1976) was challenging and gratifying, but the scuba diving itself was thrilling, inspiring, and provided me with the means to explore and enjoy a whole new world, which I was literally immersed in.

My best diving vacation was in 1977 on San Salvadore, the placid and friendly Bahama Out-Island. The waters are generally very clear, with visibility of 200 feet and up. The coral is quite varied, both in terms of species and complex physical groupings and shapes.

While one does not have to be one hundred percent physically fit to scuba dive, aerobic fitness in my opinion certainly makes for more pleasurable and safe experiences. I have engaged in jogging and swimming for pleasure and fitness since my college days, basically following guidelines outlined by Dr. Cooper in *Aerobics*. I feel that this sort of exercise is important for both physical and mental health, and as a psychiatrist, I usually recommend it to my patients.



Frances Twinem: moderate exercise all along.

Francis P. Twinem '25 I have always believed in physical activity. In prep school and college I ran the 2 mile and cross-country for eight years. Since leaving Harvard Medical School I have engaged in golf, tennis, hunting, and fishing. My favorite game is tennis, which I have been playing indoors this last winter.

Tennis provides good exercise in an hour or two. It makes me feel better, and the competition is interesting. I particularly enjoy playing doubles. In golf, I have competed in the New Jersey Seniors' Tournament and have won some prizes.

I have never had any heart trouble, possibly because I have exercised moderately all these years. In any case, my varied activities have been a source of enjoyment.



John Wesley: an immense sense of personal accomplishment.

John Wesley '67 I was on the cross-country team in high school, but I didn't get into running again until my two year stint in the Navy (1972-1974), where I started running 1 to 4 miles two to four times a week at the Great Lakes Naval Hospital along the shores of Lake Michigan. I enjoyed the blustery weather, vigorous exercise, and uninterrupted time to think. I lost some weight, greatly improved my usual sense of good health and well-being, and kept running during the next two years of pediatric surgery residency in Los Angeles.

When I emerged from sunny California as a pediatric surgeon in 1977 and joined Arnie Coran '63 in Ann Arbor, running was already a more or less well-established habit, primarily for the semblance of physical fitness it provided. Over the next two years, catalyzed by Arnie, I increased my distance and endurance, and the two of us ran our first marathon at Belle Isle in the fall of 1977. At 3 hours, 19 minutes, my time was nowhere near "winning," but my sense of personal accomplishment was immense, and has been my primary motivation in continuing to run.

I now average 40 to 60 miles a week, and am able to keep my weight at a comfortable 150 pounds without concern at all about dieting. I am much more alert and energetic during my

day-to-day surgery and teaching activities as well. In time honored HMS tradition, I have taken my interest in running to the lab, performing muscle biopsies on exercising athletes with D. Edgington, chairman of the physical education department at the University of Michigan. There is a tremendous amount of important muscle and exercise physiology yet to be learned!

The high point of my running experience was completing the Boston Marathon this year (3 hours, 13 minutes). A member of the American Medical Joggers Association, I ran under the "doctors' umbrella," and attended the excellent pre-race seminars organized by classmate Arthur Siegel. Any opportunity to visit Boston is in itself a stimulating experience, but there is nothing quite like running from Hopkinton to the Prudential down a 26 mile-long corridor of cheering humanity. Running has heightened my joy of just being alive, at jostling with windmills, and doing what men were meant to do.

Roger M. Barkin '70 Leaving the serenity of the hallowed halls of Vanderbilt, I discovered the excitement of white downhill slopes and the peaceful solitude of cross-country skiing. In the absence of snow, tennis provides a major diversion. My wife has served as my mentor and alternates between coach, team member, and opponent, all of course in the spirit of good fun. Skiing and tennis have provided an excellent balance of pleasure and exercise for me and our entire family.



Arnold Coran: to improve cardiovascular fitness.

Arnold G. Coran '63 About three years ago I took up jogging in order to improve my cardiovascular fitness. At that time I was smoking about half a package of cigarettes a day and was not particularly overweight. I began to run a couple of miles two to three days per week at a relatively slow pace and noticed a number of people who were extensively involved in jogging and running.

I was stimulated to increase my distances and my speed. As a result, after four months of running I was able to compete in a 15 mile race in Ann Arbor, Michigan. I sustained a stress fracture of my right fibula but completed the race despite the fracture. This stimulated me even further to the point where I began to compete in marathons. During the past year I have competed in seven, including two Boston Marathons. I now run an average of 50 miles per week with speeds varying from 6:15 to 7 minute miles.

Running has become an integral part of my life and has changed my life style completely. I gave up smoking without any major difficulty and I have no desire to resume the habit. Without running, I really believe that I would be missing a significant segment of my life.

John J. Lowrey '40 Living in the country one must be self-reliant as it is difficult to get odd jobs done, the work may be shoddy, and the costs excessive. Following retirement we moved here to Wailea Beach in Hawaii, where there is land to clear and fence. Fortunately my health was excellent before, but I promptly lost ten pounds and feel even better. I swim daily.

My activities as handyman, gardener, and builder give me a feeling of independence, self-sufficiency and accomplishment. They bring me close to nature and solitude.

The usual sports are fine but don't give me the lasting satisfaction that a solid straight fence, or weed-free coconut grove or healthy, growing plants do. The only questionable drawback I can see is that there is no group to sit around with afterwards in the clubhouse.

James S. Mansfield '32 I haven't done any competitive sports since running the dashes and quarter-mile at college. But I have always enjoyed, and still do, the pleasures of hiking and non-Alpine mountain-climbing. Back in the 1920s, when in California, I made a nine day hike with my brother, using a packhorse, across the Sierra Nevada, from Owens Valley to the Kings River Canyon, after which we hitchhiked into Yosemite. I took a similar packhorse trip with a friend to climb White Mountain — over 14,000 feet — in the Inyo range.

More recently I have hiked and climbed on Mt. Monadnock, the White Mountains in New Hampshire, the Green Mountains in Vermont, and I climbed Mt. Katahdin in Maine with a Boy Scout group. My wife, Sally, and I have walked the cliff-top trails of Grand Manan Island in the Bay of Fundy, and combined it with bird-watching, as we now do wherever we go. In the past two years we have hiked and "birded" in Arizona, Bermuda, and Algonquin Park, Canada, where we also joined in a wolf howl. For me, this beats jogging.



John Lowrey: land to clear and fence.

Paul H. Pfeiffer '43A At the age of 61, with the exception of snow-shoveling, grass-cutting, brush-cutting and cutting wood for the stove, my athletic activities are things I enjoy, however not competitively. At this stage of life that would be not only silly but possibly even humiliating. Physical fitness is not a prime concern. If it is an added dividend, so much the better.

I have walked the hills and mountains of New England and California as well as Kashmir, the Hindu Kush and Nuristan (Afghanistan). I have swum the beaches of Nantucket, the Vineyard, and Maine as well as those of Western Turkey, the Caribbean, Vietnam and Malaysia. I sail the Sheepscoot in a 19' Typhoon, have done white water trips on the upper Kennebec, hunted geese in Canada, played squash at Colby, jogged through a nearby cemetery, which is nice because they keep a few paths open all winter, skied in Maine and have also enjoyed the snow of Arapahoe, Aspen, Vermont and the Hindu Kush.

As for my philosophy regarding physical fitness, the most important factor is to inherit a healthy body. To maintain it one should have a reasonably optimistic outlook and lead an active life. This, of course, should include the mind as well as the body.

William B. Nevius '30 When young doctors start in practice they don't have much money (at least not back in the 1930s) and have to remain near the telephone. One of the main reasons I played tennis was that the courts of a local tennis club were just behind my house. Hence my wife could easily reach me in case I received a call. Besides, the equipment did not cost much — a good racquet only \$12-\$14, a can of three balls \$1.25, and a pair of sneakers \$2.50.

About the age of 48 I developed tennis elbow for the first time, which responded somewhat to heat, massage, and rest. One fine day I was inveigled into a game of doubles, but after two sets my elbow hurt as badly as before.

That is when I took up golf ("the old man's game") and I have been playing it ever since. Now that I am retired, I play two or three times a week and enjoy it very much. The exercise is just the right amount, the competition stimulating, and the friendships most enjoyable.

SPORTING LIVES

David J. Wyler '70 I was at one time a great admirer of H. L. Mencken, and adhered closely to his philosophy: "Whenever I feel the urge to exercise, I lie down for a while until the feeling leaves me." On January 14, 1978, I was overcome by a combination of severe cabin fever (we had a bad winter in Bethesda that year) and depression from having completed the first third of my life (my 33rd birthday was three weeks earlier).

In a moment of madness, I immediately rushed to the local purveyor of running shoes and paid \$29.95 for my first set of Etonics. This sealed my fate, since I now had to justify the investment in a pair of glorified sneakers. I began religiously running three to four days per week, in 15° weather, through rain and snow. I would never have gotten excited about running if I had started in the spring. I believe one of the best sensations — one that I was lucky enough to have experienced on my first day of running — is that of warming up in weather that keeps everyone else indoors.

There is no question that one of the reinforcements of this sport is feeling slightly superior to the non-runners, somewhat akin to the feeling of having given up smoking, perhaps. I now run mainly because I feel an excellent sensation of calm and relaxation during and after as little as a 3 mile run, or as much as an 8 mile run. My philosophy surrounds this enjoyment, in that I have no interest in competitive jogging. Rather, it is the sense of solitude and slowing down of the daily pace that attracts me. It is surprising to me, the H. L. Menckinite, how enjoyable a healthy pursuit can be.

A Defense of Exercise

An ongoing epidemiological study indicates that aerobic fitness can reduce the risk of heart attack

Research into the health status of groups and individuals may have enduring value if it produces information leading toward improved well being or avoidance of disease.

In particular, persuasive evidence has been culled from a study of Harvard College alumni — that has passed its twenty year mark — which shows that habitual vigorous exercise is counteractive to heart attack risk. Long-range and contemporary data showed that varsity athletes, who might be presumed to have sturdier cardiovascular systems, did indeed carry an immunity of sorts: a lower risk of heart attack than their less active classmates. But this favorable difference did not persist unless these athletes continued to engage in vigorous sports play or equivalent exercise in their post-college years.

The benefits of exercise, however, were also shared by those who had not been athletically proficient in school.

Ralph S. Paffenbarger, Jr., M.D., Dr. P.H., is professor of epidemiology at Stanford University School of Medicine and visiting lecturer on epidemiology at the Harvard School of Public Health. The Harvard College alumni study represents his major research effort. Its focus is on the effect of exercise on the end-point diseases of heart attacks, cancers, neurological disorders and accidental deaths. For his own health and fun, Dr. Paffenbarger is a distance runner. He has run the Boston Marathon eleven times and has finished several ultramarathons of fifty and one hundred miles. He also is an active backpacker and beginning cross-country skier. His most recent running achievement was the 54½ mile London to Brighton, England Marathon in October for which his time was 7:44:13.

Student physical activity rating	Alumni physical activity index, Kcal/week		
	<500	500-1999	2000+
Varsity athlete			
No	70.7	53.5	35.3
Yes	92.7	45.2	35.2
Sports play, hrs/week (excludes varsity athletes)			
<5	85.6	54.9	33.3
5+	61.2	49.4	28.4

An analysis of age-adjusted first heart attack rates by cross-tabulation of Harvard student and alumni physical activity rankings showed that a similar pattern of apparent benefit from contemporary high-energy output applied to all alumni, whether or not they had been varsity athletes.¹

The rates tabulated above are numbers of alumni with a first heart attack occurring during a six to ten year followup period (1962/1966/1972), per 10,000 man-years of observation. Of the experience analyzed here, sixty percent of the alumni who exercised below 2,000 Kcal per week were at sixty-four percent increased risk of heart attack in comparison with their more energetic classmates. The study as a whole involved 16,936 male alumni aged thirty-five to seventy-four, with 117,680 man-years of observation and 572 first heart attacks (215 fatal) during the ten years.

Since risk of heart disease increases with age, what insights can the Harvard health study offer? When age-specific first heart attack rates were examined in the four ten-year age brackets between thirty-five and seventy-four, the physically more active alumni in each group were better off. The same scale of energy output was applied to all ages, which suggests that the exercise as evaluated was

about as beneficial to the elderly as to the young alumni. Once it is recognized that vigorous exercise is related to lower risk of heart attack, the value of a program of primary prevention of heart attack through promotion of exercise must depend on the applicability and effect of the program — that is to say, upon its scope and its relationship to other influences.

As to scope, our findings suggest that many more Harvard College alumni could intensify their exercise to a beneficial level of energy output (2000+ Kcal/week) than have already done so. Not unexpectedly, fifty-six percent of the former varsity athletes have maintained their active status in vigorous sports or high-output exercise; evidently they had ingrained habits of being energetic and sports oriented. On the other hand, athletes who gave up their erstwhile routines tended to be a greater risk of heart attack than alumni who had never been athletic. At any one time varsity athletes comprised only about thirteen percent of the student body, so that numerically much more benefit could be expected from inducing the less active classmates to take up hale and hearty exercise as alumni. Between 1962 and 1966 about thirty-eight percent of the non-varsity alumni reported sufficient exercise to place themselves

in the upper range of energy output (2000+ Kcal) per week. It is reasonable to assume that if many more alumni were persuaded to reach that exercise plateau, and if their experience record began to resemble that of their energetic colleagues, a reduction in the risk of heart attack among the entire group of Harvard College alumni might be expected. Some trends in this direction may already be occurring.

With information about particular kinds and amounts of exercise, we have tried to assess and evaluate the benefits of each with respect to apparent lowering of heart attack risk. A list of some eighty kinds of sports play was compiled from volunteered alumni responses to questionnaires in both 1962 and 1966. These sports were then rated by Kcal/minute of energy required: "light sports" (5 Kcal/minute), "strenuous sports" (10 Kcal/minute), and combinations of these (7.5 Kcal/minute). Energy output in Kcal/week was then easily calculated. Credit was given also for habitual block walking and stair climbing — 56 Kcal/week for each block walked daily and 28 Kcal/week for each flight of 10 steps climbed daily.

From their Kcal/minute exercise ratings the Harvard health study classified bowling, baseball, casual bicycling, boating, dancing, golf, and yard work as light sports. Vigorous sports included some activities such as basketball, running, mountaineering, skiing, swimming, and tennis if strenuously played. Some alumni reported no sports play at all, some only light sports. The study showed that light sports play alone did not influence heart attack risk.

Apparently an ideal prescription for exercise — and for lower heart attack risk — would be based not merely on total output in Kcal/week but would also include provision for robust exertion. A multiple logistical analysis showed that relative risk of heart attack was significantly lower at any given level of energy expenditure if the output was achieved by vigorous rather than by more casual sports activity.

Historically, it is probable that the exercise habits of Harvard College alumni have intensified during the 1970s, with the surge of national and international interest in testing and

pushing oneself in all kinds of sports. Since reaching a peak in 1967, fatal heart attack rates in the US have dropped about twenty percent. The peak rate among Harvard alumni appears to have occurred somewhat earlier, perhaps influenced by the first stirrings of changes in habits of diet, smoking, and exercise.

Continuing the Harvard alumni health study to encompass current experiences, including exercise practices and other elements of lifestyle would be necessary to obtain a clearer picture of the role of exercise itself in primary prevention of heart attack. Details are especially lacking to answer many intriguing questions relating to the effects derived from different kinds, amounts, and frequencies of substantial exercise or the modification of other behavior patterns.

Nevertheless, exercise seemed to have a universal salubrious effect: heart attack risk was lower for the physically more active alumni, whether they were in the high or low bracket of risk factors. Thus far the Harvard study has shown that the association of exercise with lower heart attack risk is at least partly independent of cigarette smoking, obesity, and hypertension. Smokers who exercise have lower heart attack risk than smokers who do not exercise. Alumni rated as obese by body mass index have lower risk if they exercise than if they do not. Hypertensive men are at more than doubled risk of heart attack if they do not exercise to 2000+ Kcal/week. A fringe benefit for smokers who take up strenuous exercise is that they tend to reduce their use of cigarettes or even quit smoking altogether. Exercise is reputed to promote more favorable dietary habits and body system conditions as well.

The cumulative potential results of a program for primary prevention of heart attack can be expressed by a calculation of attributable risk percent. This is an estimate of the proportion of heart attacks that would be avoided if various elements of risk were favorably altered. For example, our study data implied that if the cigarette smokers did not smoke, the hypertensives achieved normal blood pressure range, and all inactives took up vigorous exercise, the heart attacks among the alumni might have been reduced by fifty percent, or the 572 attacks that occurred during the six to ten years of followup would have

been halved to 276. Obviously, still more heart attacks should be avoided in subsequent years if the program of primary prevention is "ongoing" as the study itself has been.

Further investigation would be helpful in determining what types and levels of exercise might be favored for various age groups. The cooperation of individual alumni and their personal physicians in providing fairly specific information on their current health status and their habits and prescriptions of exercise would be essential to more detailed study of these matters in relation to primary prevention of heart attack at all ages. But vigorous exercise is not the panacea to reduce the risk of all chronic diseases. It seems not to influence rates of cancer occurrence. In fact there are conditions for which exercise is contraindicated, and injuries such as stress fractures and joint problems are often unintentionally caused as well. Attention to a proper training approach is essential.

Any program, whether for an individual or a community, must be wisely planned and implemented. But even now there is little doubt that exercise is worth promoting as a means of lowering heart attack risk. Community investments in popular exercise programs and facilities are long overdue. Compared with other health costs, the modest expenditures for jogging trails, parcourses (European jogging/exercise trails), swimming pools, and bicycle paths are more than justified. Harvard College alumni involved in this ongoing health study are helping to make the rather anecdotal, dependable fact.

References

1. Paffenbarger, RS Jr, Wing AL, Hyde RT: Physical activity as an index of heart attack risk in college alumni. *Am J Epidemiol* 108:161-175, 1978.
2. Paffenbarger, RS Jr: Countercur-rents of physical activity and heart attack trends. In *Proceedings of the Conference on the Decline in Coronary Heart Disease Mortality*. US Department of Health, Education, and Welfare. NIH Publication No. 79-1610, May 1979.

You've Come a Long Way, Baby!

by Niki Janus

The education of a woman athlete

The sexual revolution has produced a new kind of woman, and the evidence is everywhere — in changed life styles, careers, and even sports. As a woman who has “made it” in a traditionally male profession, I am often asked to expound on the causes and effects of the feminist movement. But that is not what I am going to write about *per se*. There are many historians, sociologists, and psychologists who can analyze the reasons for the women’s movement more cogently than I ever could. What I am going to write about are the changes in women’s sports since the 1950s. The changes in attitudes and expectations by and for women have forced educators to reevaluate the traditional ideas behind “girls’ gym.” I have participated in and been affected by these changes and for these purposes am well named. Like the Roman God Janus, I have two views: I can see where we were and I can see what we have become. The way I grew up describes where we were. My memories of the early role of sports in my life are clear. There is no doubt that I had all the tendencies of a tomboy — an enthusiast for those kinds of games, tangling with two brothers, swimming, bike riding and all the rest. I was tall, strong, and blessed with a fair amount of coordination. Despite being physically active, I was never exposed to the concept of organized children’s sports.

After four years as assistant director of athletics at Harvard, Niki Janus was recently promoted to associate director. Her schedule permits tennis two to three times a week and a run of three to five miles whenever possible.

The only exception was in gym classes, where through the sixth grade girls and boys were allowed to play together as friendly competitors. I did well in these mixed gym classes. In the fifth grade, in fact, I was the fastest runner in the 50-yard dash. The instructor, however, did not believe it and made me do it again.

Beyond elementary school, the boys and girls were separated during gym period, and I became part of a physical education program for girls typical of the 1940s and ’50s — one tailored to the social and recreational values of athletic participation with emphasis on sportsmanship and not on competition. Boys played baseball; girls played softball. There was no concern with mental toughness.

In high school, I developed certain negative feelings about physical education for women. The gym classes were large, and I hated the gym suits, tank suits for swimming, gang showers and “group swimming” for women only. We rarely saw the boys on the playing fields, unless we went to the Saturday afternoon football games. Boys’ competition with local high schools attracted some attention, but comparable interscholastic play between girls’ teams seldom created much interest.

Until this point, I had had little experience competing with other girls in a structured way. Gym had always been fun and I had done well especially in field hockey and lacrosse. But now in high school I suddenly faced being segregated with girls and encountering competition. It no longer came easily and no one was there to train us to improve outside of gym period. It was



Phys. Ed. at Radcliffe circa the mid-1950s.

then that I decided that I just wasn’t competitive. I’ve since identified this as my defense against the reality that I was playing with girls who were better than I. That attitude was to prevail through college.

Concerns about the sports and physical education programs were certainly not central in my choice of a four year women’s liberal arts college. I entered Mills College in Oakland, California in 1960 and had to adjust to living and competing with other women in all regards — athletic, academic and social. I did not give up completely on athletics: I played on the tennis team. But while the talent was there, the desire to win had not been developed. Mental toughness was not what a Mills education was all about. In the 1950s, the school’s president, Lynn White, commented that Mills “educates women to be good wives and mothers.” The dance faculty had a national reputation and majors in dance received full academic credit. In contrast, the health and physical education department focused on hygiene and the traditional gym class. It was acceptable for a young woman to be an accomplished tennis player, but not to exhibit the kind of intensity that characterized men’s sports. Although dance

and athletics both require physical skill, the difference in the quality of instruction reinforced the anti-competitive bias in the curriculum. Much the same philosophy was espoused at other women's colleges during those years.

Inwardly, I continued to maintain that I lacked that inner competitive drive. Though a ranked tennis player that played the likes of Stanford and Berkeley, I remember napping through daily practice and clutching in tight matches. By today's standards, we had essentially no coaching. The fact that we simply played, without any drills or criticism, took much from what the experience could have been. Mills had one of the first eight-oar crews for women, and I remember being invited to row. I declined, not appreciating what that kind of experience could mean.

Again, one might best look at all of this in light of what was expected of a young woman at that time. Although mine was one of the first classes with a high proportion going on to graduate school, the "norm" was that we would leave college, get married, raise children and live in Suburbia.

During my first five postgraduate years I went to work in educational administration at Harvard. I continued with my tennis, but it was now socially motivated. My husband and I did not focus on physical condition except in terms of how the scales read. We were too busy getting through graduate school, worrying about jobs and surviving financially.

I began to run around 1969–1970 when the whole health food-vitamins-fitness-women's movement wave hit us all. I would jog and take an alphabet of vitamins and was considered quite liberated by my female friends. Their perceptions were bolstered, of course, by my continued pursuit of a professional career. Following two years with Planned Parenthood in Chicago, I returned to Cambridge in 1972 as assistant to Radcliffe President Matina Horner, whose research on the fear of success syndrome in women had attracted national attention. Horner's research results zeroed in on the conflict a competent woman faces: if she fully realizes her potential — whether as a student or

professional — she runs the risk of being ostracized socially and labeled undesirable by men. Horner showed that bright college women went to some lengths to minimize their abilities, which helped to further an intellectual double standard.

Matina Horner's appointment coincided with the transition at Harvard to coresidency and coeducation — a phenomenon that was shared by other all male and all female colleges. The abandonment of single sex education was a response to both changes in women's attitudes about their traditional roles and an acknowledgement of the financial realities of private institutions. Women were pushing and educators responded philosophically as well as pragmatically — they saw an opportunity to fill empty dormitories built for the baby boom college generation by opening the doors of higher learning to women.

In the early '70s, Harvard and Radcliffe were working under the terms of the merger/nonmerger agreement that guaranteed financial stability for Radcliffe. Central to this understanding was a clause that stated that Harvard would assume the responsibility for certain "non-retained" functions such as the comptroller's office, buildings and grounds, food services, and athletics.

The Radcliffe department of sports, dance and recreation existed on a shoestring budget, and amounted to a pool, small gym floor and limited tennis courts. The basketball team had to share the gym floor with the dance program, and while Radcliffe fielded eight interscholastic teams, which competed against MIT, Tufts, and the Seven Sister schools, these programs were low-key and minimally funded, with most coaches part-time or volunteer. Only the sailing team had a notable history of success.

But Harvard now had to accommodate a new generation of women who knew the difference between acting and being acted upon. They were there to claim rather than to receive an education, and nowhere was this more evident than in the athletic arena.

The first major competitive victory involved rowing — a Harvard tradition. In 1973 a group of Radcliffe women gained access to Weld Boathouse, found a prod-

uct of Harry Parker's crews to coach them and with the support of Radcliffe alumnae went on to win the nationals and to compete at the world games in Moscow.

In spite of this demonstration of excellence and determination, there was considerable resistance and foot dragging; it was clear that it would take time to win acceptance. In the course of this effort, some philosophical questions arose regarding women and athletics. More than a few eyebrows were raised at the sight of women running around campus in shorts and teeshirts, demanding training meals and rowing at 6 am. Doubts were expressed by older alumnae whose four years in Cambridge had bathed them in a more idyllic climate. Fellow students and administration representatives of both colleges wondered why women wanted to train, develop muscles and compete. Others questioned spectator interest in women's athletics and how this would affect future alumnae support. Others wanted to know if women could reach a high level of excellence. Did they have the inner drive?

More than a few horror stories emerged from this period — women having to walk through men's judo classes to dress behind curtains and the like. Of course, Harvard's facilities were not designed with women in mind and the transition was painful and embarrassing to many.

Yet the inevitable soon became apparent to those in University Hall and 60 Boylston Street (the athletic department). Harvard had accepted the responsibility for athletics and eventually all aspects of undergraduate education at Radcliffe. Women were demanding the opportunity to exercise, to train and to compete; a national organization for the governance of women's athletics was emerging (AIAW); and finally, the 1972 amendment to the Education Act — Title IX — was being promulgated. Title IX requires that any institution receiving at least \$50,000 annually in federal funding provide equal access for all students and employees without regard to sex. In the minds of many athletic directors, the law created tremendous obstacles to the continuation of traditional programs — particularly at colleges and universities offering athletic scholarships.

For those institutions in the midst

Amenorrhea and the Athlete

One side effect of the traditionally meagre opportunities for women in competitive sports has been the relative dearth of scientific and medical attention for the female athlete and her problems. However, a new Harvard study, funded by the Advanced Medical Research Foundation, will focus on the menstrual disturbances, including amenorrhea, that appear to affect a disproportionately high number of athletically active women. The two principal investigators on the project are Rose E. Frisch, Ph.D., of the Center for Population Studies and the department of population sciences at the School of Public Health, and Janet W. McArthur, M.D., who is also a member of the Center for Population Studies and is professor of obstetrics and gynecology at the Massachusetts General Hospital. They will be assisted by members of an interdisciplinary team: Tenley Albright '61, sports medicine and gynecology; Dr. Jason Birnholz, ultrasonography; Dr. Beverly Bullen, exercise physiology; Dr. Howard Hermann, psychiatry; Dr. Matina Horner, psychology; Dr. Sholem Postel, internal medicine; Dr. Robert Reed, biostatistics; Dr. Neil Ruderman, metabolism; Dr. Astrid von Gotz Welbergen, gynecology; and Mrs. Jelia Witschi, nutrition.

Women from the Radcliffe varsity swimming, cross country, and track and field teams will be the subjects of the research. They will provide complete medical and reproductive histories and keep daily records of body temperature and menstrual activity. Ultrasound measurements of subcutaneous fat thickness will be noted at the four sites most typical of female fatness. Seven day diaries of nutrition and

energy expenditure will be collected at regular intervals and psychological indices of stress will be assessed through "mood profile" questionnaires filled in before and during periods of intensive training and competition.

Stress, long thought to contribute to menstrual irregularity, is presumed to have a significant effect on the reproductive cycles of women exposed to the physical and emotional rigors of intercollegiate play. The present study should help establish how instrumental stress actually is, as well as to determine the kind and degree of other critical factors. Recent work by Dr. Frisch and Dr. McArthur suggests that when women lose from ten to fifteen percent of their total body weight they lose approximately one-third of their body fat. Concomitant with this, the ovulatory cycles are likely to be suspended. According to Dr. Frisch, that phenomenon may result from an innate, self-protective mechanism. "We know that mature women have between twenty-six and twenty-eight percent body fat, which can be regarded as stored energy for reproduction and lactation. If a woman's body is lacking the necessary energy for adequate nourishment of the unborn child and for lactation, the brain apparently 'shuts everything off.'"

With more and more women heeding the call to fitness, the current study is particularly significant. "Some women athletes have experienced considerable anxiety about this," said Dr. Frisch, referring to the incidence of amenorrhea, "and it's important to be able to give them the reassurance that these disturbances represent a presumably transient dysfunction."

of declines in enrollment and the recessions of 1974-75, the prospect of renovating the facilities and hiring new personnel to accommodate the interests and abilities of female students was alarming. And then there was the debate about revenue-producing (football, basketball and ice hockey) and non revenue-producing sports and their affect on the total financial health of many institutions. There was concern how fund-raising and alumni support would be affected if these tra-

ditional programs were upset as resources were diverted to assist the development of women's programs. And at Harvard, the strictest school in the Ivy League on recruitment rules, many predicted that the admission of more women would begin to adversely affect the traditionally large "pool" of male athletes.

By 1975, Harvard and Radcliffe moved to a policy of equal access admissions and removed the ceiling placed on the number of women who



could be admitted. In that same year I was appointed assistant director of athletics—a job with financial and administrative responsibilities related to the total program for men and women, an indication of the about-face that had occurred over the past several years.

My credentials were reasonable to the extent that I understood the ins and outs of Harvard and Radcliffe administration, but I knew little of the Ivy League policy and structure, not to mention having a total lack of familiarity with sport jargon and national organization. Associates thought I was crazy to join to staff; friends laughed and asked me where my whistle was; most viewed my appointment as one of "woman for women"—something I resisted strenuously, but which, during the first few years at least, was basically true.

Women seeking athletic opportunity beat a path to my door. Our first crisis was a "strike" by the women's varsity basketball team. The players refused to participate until their coach—who had been in charge of the basketball and tennis programs for three



Crew practice on the Charles River, 1978.

years — was replaced with a more competent person, someone they respected, who would take them seriously and set high standards for training and competition.

As facilities were renovated to accommodate the growing numbers of women interested in intercollegiate and intramural athletics, we struggled to define goals and expectations for the program. After all, even Harvard was not in a position to invest in facilities and personnel and equipment as an experiment. It was critical that women make the commitment. We were able to give ourselves the necessary perspective by structuring a procedure for recognition as a varsity team, which required a good deal of initiative on the part of the students. They had to demonstrate interest and perseverance over a period of time while working to raise funds to help defray travel and equipment costs.

Even more difficult was the search for competent coaches. There was always the question of whether the coaches of women's teams should be male or female. After all, women un-

derstand "women's problems" and wasn't there the danger that men might take advantage of young women and worse perhaps, coach a more aggressive "rough" game? Not the least of our trials was the determined resistance of the men's teams. They were forced to share prime practice times; to give up the fields and tennis courts and squash courts; to dress decently before going to the Dillon medical room for treatment because women now shared the training facilities; to share a bus with the women's team competing at the same school. Finally, the admissions process had to adjust to the reality that a woman might choose a non-athletic scholarship school for its rowing or field hockey program. In effect, an implicit male territorial prerogative was no longer inviolate and respect for women "jocks" was reluctantly won.

It is now the fall of 1979. Those numbers that said some eighty women played eight intercollegiate sports at the time of the merger now read differently. More than 300 women are competing in sixteen inter-

collegiate programs. And this does not reflect comparable changes that have taken place in the recreation and club levels. Where \$50,000 was spent in direct expenses for women back in 1974, the figure for 1978-79 was \$300,000. Where women once had to dress in their rooms before coming to Soldiers Field for uncertain field space or to the Indoor Athletic Building for one or two lanes of the swimming pool, they now enjoy a \$1,000,000 locker area and equal access to all of Harvard's new facilities, including the Blodgett Pool, the Indoor Track and Tennis complex, and Bright Hockey Rink.

Full-time, qualified coaches are the rule and game schedules have expanded beyond the Seven Sister schools to include Ivy League round robin competition. Trainers are assigned to women's teams and women share the Nautilus weight facility, participate in preseason practice programs, and enjoy spring training trips. But the most visible change to me is in attitude. The kids are serious, mentally tougher, physically stronger, and more competitive. Women who make the time commitment to competitive sports do not do so frivolously. It means dedication, painful training, and sometimes disappointment. It also means friendship and the opportunity to know coaches who are working toward the goal of having women athletes realize their potential on the playing field, oftentimes achieving more than they believe is possible. This requires discipline, team work, desire and frequently means risking one's self esteem and ego.

I imagine (as a hardworking optimist) that in another five years this kind of athletic opportunity will be taken for granted in the elementary, high school and college programs for American women. For me as "Janus" and associate athletic director, it has been very important to understand where we are in the context of where we have been. I often feel that I have been shortchanged and wish I were entering high school with today's young women. Belatedly, I have come to understand that I am competitive. But I still wonder how far I would go in testing my physical and mental toughness and whether I would have the courage to put it all on the line in competition. I would like to think so. What better training for life?

Small Athletes and Big Injuries

When the welfare of young players is on the line, necessity is the mother of prevention

If any doubt remains that we are in the midst of a sports and fitness boom in this country, the skeptic need only visit the nearest city park, reservoir path, or city street to see "new athletes" jogging, biking or roller skating their way to fitness. Ironically, these recreational sports, which in the past belonged primarily to children, are now serious business for their adult relations; organized team sports, which used to be almost totally dominated by young male adults, are today geared increasingly to boys and girls in the under twelve set. While the motives of the adult organizers of Pee Wee hockey, Pop Warner football, or Little League baseball are often irreproachable, the experience of our Sports Medicine Division with children's sports casualties has left our staff with a number of questions for which there are no ready answers. Should children lift weights? Is it safe for children to run the marathon distance of over twenty-six miles? Are contact sports safe? Can the emotional stress of organized sports competition be too much for children to handle?

Lyle J. Micheli '66 is director of the Division of Sports Medicine at Children's Hospital Medical Center and an instructor in orthopedic surgery at HMS. The staff of the Division includes two other orthopedic surgeons, a podiatrist, and physical therapists. Dr. Micheli had a part-time rugby career that flourished during his undergraduate years at Harvard and lasted until just recently. He still plays occasionally and is now a confirmed jogger. For the past year and a half he also has served as physician to the Boston Ballet.

The sports medicine physician who ministers to the professional athlete may be troubled by the demands of contracts, or by conflicting obligations to individual players and management, or by whether a medical decision will adversely affect the outcome of a team's pennant race. The physician managing injuries to children is often dealing with questions of equal import, but with few specific guidelines to follow.

The primary intent of the four orthopedic surgeons who established the Sports Medicine Division of Children's Hospital five years ago was to render a high level of medical care to children with sports related injuries. The particular emphasis was upon rehabilitation, with full return of joint motion and muscle strength, before sports were resumed. We were, in effect, hoping to make available to young athletes the same level of sports care and rehabilitation that is taken for granted by their counterparts at the college and professional levels.

We have had considerable success in attaining this objective and are justifiably proud when one of our former patients scores a winning touchdown or wins a tennis tournament. Along the way, however, we have become equally concerned about preventive approaches and we have made concerted efforts to disseminate this information to parents and young athletes alike.

Often the most important question to ask about an injured athlete is whether the injury was preventable. In our society, trauma is now the number one "disease" of children; it has surpassed congenital and infectious dis-

ease as a cause of illness or death in children below the age of fourteen. While traumatic injuries occurring from free play activities or motor vehicle accidents are usually difficult to control, sports related injuries in children, given the relatively regulated environment of a Little League game, or school field day, or Pee Wee hockey contest, should be more accessible to epidemiologic study and subsequent preventive measures.

Because of the susceptibility of children to extremity and spine injury, Little League already limits a pitcher to six innings per week and Pop Warner football recently outlawed cross-body blocking. When it comes to protective equipment, however, the value of some varieties has been frequently overemphasized. Nothing has been designed that adequately protects the knees of young football players, for instance.

A conscientious attempt to assess etiologic factors and degree of risk ought to decrease both the incidence and severity of injuries. We have found, however, that this is more easily said than done. The physician — even if an acknowledged sports physician — who makes recommendations regarding protective equipment, rules, or playing and training techniques for specific sports may find such advice ignored or, as sometimes happens, directly challenged by coaches, athletic trainers, and even parents. Although no coach or trainer would deny the importance of preventing injury, a frequent overriding concern for "winning the game" may sometimes make the most well meaning coach or parent lose sight of the dangers to children of a



sport.

On one occasion I gave a lecture to a group of local football coaches on the hazards of spearing and butt blocking in football. (In such maneuvers the helmet and head are used as a battering ram in blocking or tackling an opponent.) The anatomy and physiology of the head, neck, and cervical spine were reviewed, and the mechanism by which a butt block or spear could result in a serious injury to the neck was demonstrated.

The general response of the audience and the tone of the question and answer period convinced me that I had gotten my message across and that these coaches understood the hazards of this particular tactic, and presumably would swear off promoting it and related actions. Several days later I was jogging by a park where one

of the local football teams was practicing. The coaches, both of whom had heard me speak, were running a drill in which a ball carrier and tackler began charging at each other from a distance of about ten yards. The tackler was exhorted to "drive your head into his bread basket" while the runner was instructed to "protect yourself with your head" and to ward off the tackler by "jamming your helmet."

Evidently sports medicine specialists and coaches live in very different worlds. Perhaps a few weeks' duty on a spinal injury ward would help to sharpen their perceptions of the need for injury prevention, just as sports participation has helped several of us in our understanding of the dimensions of sports medicine.

An equestrian does not begin jumping training for a horse until the

animal's body growth plates are closed. Yet we allow children to engage in arduous sports training, oblivious to the potential peril to the still growing articular cartilage and long bones of the extremities. In the non-contact sports, in which high velocity trauma is not likely, the recurrent micro-trauma of repetitive training (as in throwing, gymnastics, or distance running) may be harmful. In contact sports (gridiron football, soccer, hockey) the risk of injury, especially irreversible injury, to the growth plate of the bones from high impact trauma may be greater when the players train seriously and play intensely. The young runner may be hurt by training too hard. The young lineman, because of his training, may be playing too hard.

Fortunately, the few studies that have been done on relative risk of injury in organized children's sports suggest that the rate of injury has been quite low. Nonetheless, the potential for serious and permanent injury to growing bones is real, and the risks versus the benefits of a particular sport must be carefully weighed by parents and physicians. Neck injuries, for example, to young football players may have long-term arthritic consequences in later years. Proper conditioning is certainly a factor. Some recent studies have shown that children are capable of adult levels of cardiovascular training without risk of injury. Yet, whether they can safely endure the repetitive leg pounding of distance running still remains a subject of debate because of inconclusive data on the risk to the open growth plates. Growth plates are vulnerable to damage from free weight lifting and especially military presses. We have observed musculotendinous ruptures in children lifting excessive weights, including a nine year old with a complete rupture of his quadriceps muscle resulting from an attempt to perform a full military press with free weight. But proper weight training — using the low weight, high repetition technique — improves the strength of the muscles of the extremities as well as those of the ligaments and bones.

Ultimately, the most effective technique for injury prevention in young athletes may well be the encouragement of a relaxed attitude towards sports — one that does not urge winning at the risk of sacrificing the normal growth of bones, joints, and emotions.



High flying: Bobby Orr scored the winning goal against the St. Louis Blues that won the Stanley Cup for the Bruins in 1970.

by Carter R. Rowe

Inside Bobby Orr's Knee

How sports physicians try to keep professional athletes from falling down on the job

Carter Rowe '33 is associate clinical professor in orthopedic surgery, emeritus, and senior orthopedic surgeon at the Massachusetts General Hospital. He takes his physical exercise in the form of long walks, golf, and swimming.

Sports medicine did not come quietly to the Massachusetts General Hospital. In August of 1969, the late Dr. John Knowles, then director of the hospital, welcomed the Boston Bruins to the MGH for their medical problems. A former hockey player himself, John knew the risks of the game and the value of immediate and comprehensive medical attention for the players. In setting this up, he selected Drs. Earle Wilkins '47 and Ashby Moncure to supervise their overall medical care and I was chosen their orthopedic consultant.

The period between 1969 and 1975 was considered the *Orr-Esposito Era* for the Boston Bruins, during which time they led their team to two Stanley Cups (1970 and 1972), winning the initial one in overtime against the St. Louis Blues with a spectacular goal by Bobby Orr. But spectacular performance depends as much on physical condition as on team strategies. Professional athletes are prone to site-specific injuries that undermine their abilities and can obliterate their careers. Orr would be playing today if it were not for his left knee, which gave him trouble throughout most of his hockey career. In 1969, Dr. Ronald Adams removed a torn medial meniscus, and during the ensuing six years, four more operations were done on his left knee, three of them performed by me.

Many athletes have torn menisci removed and yet continue to play without further trouble. What was the specific recurring problem with Bobby's knee? The answer to why some athletes, with stable ligaments of their knees, continue

to have trouble following a meniscetomy eluded us until the early 1970s, at which time we noted that many athletes with residual internal torsion of their tibia (turning in of their leg with some degree of bowleggedness) experienced early degenerative or traumatic changes of the medial compartment of their knees.

I call this "the designated hitter's knee," as the player can hit the ball, but has difficulty running the bases. The knee is essentially a hinge joint. If one twists a metal hinge, it will wear out faster than a normal aligned hinge. So with the knee joint. If the tibia is not correctly aligned—that is turned in, in relation to the knee—it will exert wear on the inner compartment of the knee. This abnormal stress will eventually wear down the medial meniscus, and when removed, will exert its force on the joint line and medial femoral condyle, producing spurs, loose bodies and gradual destruction of the cartilage.

When I first examined Bobby in February 1972, I was surprised to find that despite strong knee ligaments he had residual turning in of his tibia of 45-50 degrees, with thickening and narrowing of the medial joint line, whereas his lateral joint line was perfectly normal. A baseball or football player can run with his legs turned in, but a skater must *externally* rotate the leg 45-50 degrees from the neutral position. Therefore, to compensate, Bobby had to externally rotate his leg 80 degrees or more in pushing off and gaining speed. This added constant strain and shearing force to the medial compartment.

Our first operation on Bobby's left knee in June of 1972 consisted of resecting the residual torn portions of his medial meniscus and removing the spurs along the medial joint line. This procedure gave Orr three of his best hockey years, during which he won many honors including the Norris Trophy (best defenseman in the NHL) for 1973 through 1975, the Art Ross Trophy (scoring leader) in 1975, and the most goals of a defenseman in 1975. However, by the fall of 1975, the loose bodies and bone spurs had reformed, and again with loss of cartilage from the medial femoral condyle. Bobby was aware of these findings and what they meant to his hockey career. He wanted to have a few more years of playing, even though the degenerative process would continue. Therefore, a similar operation was performed in September of 1975. He returned to hockey in November, but, unfortunately, tore his lateral meniscus in a game against the New York Rangers in late November. Because of continued locking and giving way of his knee, the lateral meniscus was removed. A prolonged rest period was advised. In the early fall of 1976, after moving to Chicago, Bobby played for the Canadians against the Russians and was voted the most valuable player. Soon afterwards, it was evident that his knee could no longer tolerate the demands of play. He had his fifth operation in Toronto and gained more time, but not enough for his knee ever to recover fully from the continual abuse on the ice. In the following year, November 8, 1978, Bobby Orr retired from professional hockey at age twenty-nine. Often during his active years he played at top performance in spite of a sorely painful knee. This was characteristic of Number 4, who not only won the hearts of all in New England, but became perhaps the greatest hockey player of all time.

What could have been done to prevent Bobby's left knee from deteriorating so rapidly? Early in his hockey career, a

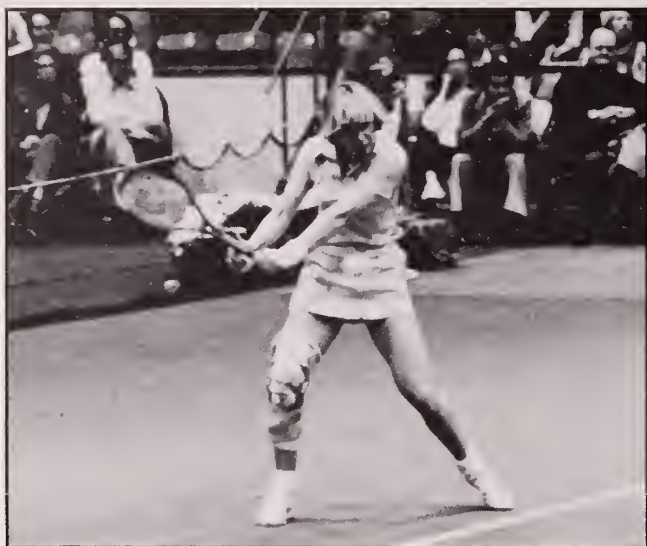
high tibial derotation osteotomy to correct the alignment of his leg might have protected his knee and added to his playing longevity. However, no professional athlete would consent to such a major operation unless the discomfort and pain were disabling. By the time the changes in Bobby's knee had taken place, it was too late for an osteotomy to help.

Joint surface replacement surgery is not possible at the present time for athletes, as the bonding material of the prosthetic device and the bone itself cannot withstand the stress and strain of competitive sports, and consequently become loose. It is conceivable that in the not too distant future joint surface replacements may be developed to a point of safely absorbing the demands of competitive sports, thereby allowing many athletes to continue their careers.

From specializing in the physical well-being of the Bruins, the MGH has branched out in its interest in injuries of the athlete. In 1976, a sports medicine clinic was established, and in 1977 a runners' clinic was started under the direction and supervision of Drs. Bertram Zarins and Dinesh Patel. A sports medicine fund has been established that supports research into tendon strength, tolerance and repair, and into improved techniques in reconstructing torn ligaments of the knee.

During the past ten years, in both the US and Canada, marked advances have been made in restoring unstable knees to acceptable levels of athletic performance. Many problems of ligament reconstruction, however, remain unsolved and are being studied intensively at the present time. Other milder sports have afforded us the opportunity to survey athletes at closer range. Tennis player Greer Stevens, who, with a single twist of her knee, while playing for the Boston Lobsters in May of 1978, severely tore both menisci and the anterior cruciate ligament, is, at present, testing one of the newly designed ligament repairs. Her response over the past year has been most promising. With the increased interest in tennis and jogging in this country over the past decade, specific problems in conditioning and performance have arisen. Twenty years ago you ran when you "felt like it." Today the directive is "every day, rain, snow, or shine." In tennis there used to be three or four major tournaments a year. Today there are continuous tournaments listed in North America and Europe throughout the summer and in warm climes during the winter.

The medical problem presented is basically: how long can the tendon and its attachments, the ligaments and joint structures, respond to the demands of long term and repetitive top level performance? When supporting tissue is pushed beyond its functional capacity, fragile balances are eventually imperiled. Multiple micro-tears of the tendon origins and insertions are produced at the elbow ("tennis elbow"), of the patellar tendon ("jumper's knee"), and at the attachment of the tendon Achilles ("runner's heel"). The overall diagnosis often is "tendonitis," and the treatment usually centers around injections, which may give temporary relief, but if too frequently administered may cause further injury. Bobby Lutz is a case in point. He received injections for his right patellar tendon prior to some twelve tournaments only to have it completely rupture when defending his title at Longwood in 1973. Surgical examination



Braced for play: nine months following surgery for a ruptured anterior cruciate ligament and torn menisci, Greer Stevens tested her knee in her March 1979 match against Virginia Wade.

revealed marked dissolution, degeneration, and inflammation. Reconstruction of the tendon and reattaching it to the patella and quadriceps expansion were necessary: within a year Lutz was back in professional competition.

Tennis is game of mechanics, and mechanical failures can arrest a player virtually in midswing. The "arm player," who hits the ball just with the extended arm, omitting body motion and rhythm with the stroke, is likely to develop attritional micro-tears of the extension tendons at the elbow. Bjorn Borg is the perfect example of a player who completes every stroke with perfect body and arm rhythm. All mechanical strain is eliminated from his arms, shoulders, and knees, thus allowing him to control his game and outlast his opponent—and play the next day with little abuse to his muscles, tendons, and ligament attachments.

There are many other problems related to training, conditioning, protection, and rehabilitation. The selection of the sport best suited for the physique of the grade school or high school athlete is most important and should be considered by all trainers, coaches, and team physicians. For instance, the lax, loose-jointed youngster should be encouraged to take part in gymnastics, swimming, tennis, track, and to avoid forceful body contact sports. Stability of the shoulder, knee, and ankles for this type person is much more difficult to restore than for the person whose body ligaments are normal. On the other hand, sturdy young people with tight ligaments are best trained for forceful contact sports such as football, hockey, rugby, boxing or wrestling.

Physique, the site of injury, temperament, and coordination are the important factors in an athlete's endurance and "survival." Some players in a contact sport such as hockey escape crippling injury — John Bucyk (twenty-six years), Jean Ratelle (nineteen years and still playing), Dallas Smith (twenty years) and Rick Smith (eleven years and still playing) of the Bruins. Phil Esposito, who suffered a major ligament injury to his right knee in 1974 in a game against the

NY Rangers, has responded most effectively, and continues at top performance. One of the reasons Phil's knee has healed correctly is that his legs are stocky and well aligned. His injury involved the collateral ligaments, which were repaired back to bone, and fortunately the menisci and joint surface were not involved.

Remembering Phil Esposito, I recall a prank that reveals some of the lighter sides of the professional athlete. Four days following major surgery for repair of torn ligaments of his right knee, Phil's entire right leg was in a plaster cast suspended in an overhead Balkan frame. That afternoon he was visited by some of his Bruins teammates, including his good friend Bobby Orr. As they left the room, one of the players said, "We'll be seeing you again later." At 7 pm while making evening rounds, I heard my name paged, with an added word of "urgent," to call Phillips House 5 immediately. At the other end of the telephone, an excited nurse exclaimed, "Dr. Rowe, I don't know what to say. Phil Esposito is not in his room . . . and neither is his bed!" This was indeed unusual. And true it was.

I found Phil's room (which was directly across from the elevator) completely empty; no patient, no bed. Soon we heard that a bed with a patient, leg suspended in traction, had been seen pushed through the corridors and out through the north entrance of the hospital. It was reported to be at the Branding Iron Restaurant two blocks away. I called the restaurant and asked if, perchance, a patient in a hospital bed happened to be there. Bobby Orr answered saying, "Don't worry, Doc, we are handling Phil just like a baby. We'll have him safely back in his room in twenty minutes."

The details turned out to have been carefully masterminded. Bobby and four other Bruins hired a plainclothes man to go to the nurses' desk on Phillips House 5 for the purpose of finding a suspected criminal posing as a patient on that particular floor. All the nurses were gathered together at the nursing station to help out. Bobby had bribed the elevator operator to take the bed — frame and Phil — plus his escorts, to the first floor, after which they rushed through the corridors yelling, "Emergency, Emergency!" and out through the north door of the Gray Building (breaking the door down a bit).

They proceeded across the street to the Branding Iron Restaurant (losing a wheel of the bed en route), through the front door, and up to the bar where they ordered a cold beer for their friend, who, by this time was in third degree shock. Refreshed, the entourage then returned to the MGH, through the broken-down door, and deposited Phil in his room, fulfilling the promise of having him back safely within twenty minutes.

In telling the story later, Phil said, "I suspected something was up when they said they would see me again later that afternoon. While they rushed me through the corridors I covered my head with the sheets. What were these guys doing, and where were they taking me?" The end of the story was as unpredictable as the start. At first, the Bruins players said that the Bruins front office would pay for the damaged door. With a flat refusal from the management, Bobby then said he would. In the end, who paid the bill? Phil Esposito of room 517!

Lesson: athletes are a pretty dexterous lot. Never call the game in advance.

Letters

Cover circuitry

The cover of the March/April *Harvard Medical Alumni Bulletin* is the most functional organization chart that I have ever seen. In addition, I found the articles on the managerial style of your new dean interesting in their own right; the office of the executive vice president of the AMA also represents something of the eye of a hurricane. Many of us are dedicated to the task of tightening up that attenuated relationship indicated at the bottom of the HMAB cover. We are already making great strides in that respect.

Grant V. Rodkey '43A

The *Harvard Medical Alumni Bulletin* is the finest publication of its kind in the nation, and I compliment you continuously on its quality. However, I am dismayed by a technicality that possibly slipped by you, namely the sense of humor on the cover of your March/April 1979 issue in reference to supportive foundations and philanthropists as "friendly" and "gotrocks." Perhaps I am overly sensitive, but if it was to turn off one prospective donor, it could be an expensive publication.

John A. Schilling '41

Vanishing Veritas?

The articles by Messrs. Ford and Gutheil were admirable approaches to intelligent analysis of the often conflicting worlds of psychiatry and law. While both gentlemen appear to have measured and balanced views of the interface of their two disciplines, I must

admit I felt a bit more at ease with Mr. Ford's language and his subtle wry humor. In addition, his description of the inability to form meaningful human relationships as "the most corrosive poverty of all" expressed the all too common tragedy in almost poetic terms.

Mr. Ford was correct in calling attention to one of the cardinal rules of psychiatry, the avoidance of premature closure. I wish to make some further comments regarding closure and its avoidance. Premature closure can best be avoided by collecting, digesting and analyzing facts as well as by obtaining insight into the patient's (or client's) many mechanisms of coping. These guidelines can and should be used by both psychiatrists and lawyers. Unfortunately both may fall into the dangerous trap of premature closure — of jumping to unjustified conclusions.

A psychiatrist who prematurely closes during an evaluation of a patient, may unconsciously support his or her own bias. The resultant inadequate conceptualization of the patient's problem may be untherapeutic in the long run. John Mack, psychiatrist and Pulitzer Prize winning author of *A Prince of Our Disorder*, has stated in his book, "It is often extremely difficult to understand the patient's mental status, the distortion of reality he is communicating, and the psychological mechanisms he is using to do so if the therapist is kept in the dark about the patient's actuality, present and past. Often the therapist finds himself subtly caught up in an unconscious participation in the patient's distorting mental mechanisms, complying with the misrepresentation of the outside world which might not be so unfortunate if it

were therapeutic. But more often than not this compact is not only untherapeutic; it confirms the patient in maladaptive approaches to the world around him."

Lawyers may also be guilty of premature closure — and they may not even consider the ultimate significance of their often conscious act. Perhaps they consider the rights of their clients as coming before responsibility. Mr. Ford stated, "Whereas getting the client off is a major concern of the lawyer, the task of therapy may be to get the patient to face up to responsibility." One can easily imagine a lawyer saying, "My client is innocent even though he is guilty. My client does not abuse his spouse even though he does. My client does not exhibit antisocial or anti-self behavior even though evidence exists to the contrary." The distinction between premature closure, distortion and outright lying may at times be hazy. Examples of such maladaptive thinking are innumerable.

I have heard of an allegedly competent lawyer saying that perjury doesn't mean anything. I have heard that during one trial an allegedly competent psychiatrist changed his view of, redefined, and thus totally altered the meaning of narcissism. Court officers may be confused by psychiatric terms yet if psychiatrists avoid clarification the court's confusion may be magnified, and the adequate function of the judiciary process may be impaired. A judge once inquired of a psychiatrist whether or not conversations with certain parties were obtained in an "open" way. The psychiatrist said that the parties were free to tell him anything. He never mentioned the possibility that denial, ambivalence, projec-

tion and distortion might have been operative during his interview with the parties. I know of a nationally recognized jurist who is unaware of the meaning and significance of premature closure.

Premature closure, truthfulness and truth telling are all closely related. While I'm sure both Mr. Ford and Dr. Gutheil are admirable, honest and sincere men, I have a feeling they may have fallen into confusing truth with truthfulness. This basic yet surprisingly poorly understood point is nicely developed in Sissela Bok's masterful text, *Lying: Moral Choice in Public and Private Life* (See the review of G.S. Richardson in the Nov./Dec. 1978 HMAB).

Ms. Bok's sensitivity, insight, understanding and concern for truth and truthfulness should serve as a guideline for members of both professions. Her hardline approach is refreshing, needed and courageous. The book needs to be read in its entirety to grasp its real significance. To use selected quotes from her text is perhaps to do her an injustice because her arguments are so thoughtful and deserve careful analysis. Nevertheless, allow me to choose a few quotes from *Lying*:

"To claim that since telling the truth is impossible, there can be no sharp distinction between what is true and what is false is to try to defeat objections to lying before even discussing them."

"But deceit controls more subtly, for it works upon belief as well as action."

"Trust and integrity are precious resources, easily squandered, hard to regain. They can thrive only on a foundation of respect for veracity."

"A public inquiry into the appropriateness of lying in court on behalf of perjurious clients would lead to a perception that there are *limits* to acceptable advocacy in courts."

My point is just this — the interface of psychiatry and the law is never more close or more intimate than in the area of truthfulness and lying. Both disciplines need to carefully consider this common denominator. Ms. Bok's text should be required reading for both professions. The greater challenge for all of us is to take a bigger step in incorporating her ideas into our everyday lives, thus changing our attitude towards truthfulness.

Premature closure is based upon biased reasoning. Psychiatrists can exhibit biased reasoning, and they should look carefully into certain of their judgmental processes that relate to truth. Perhaps a few final quotes from a psychiatrist who has studied narcissism might be appropriate. Dr. Heinz Kohut, the author of *The Analysis of the Self*:

"Just as in other scientific pursuits, creativity in analysts is incited by many stimuli and fed from many sources, including the worker's potentially pathogenic conflicts. The relationship between an analyst's scientific creativity and his psychopathology is however at times more specific than is the case with analogous creative activities outside our field."

"The potentially fertilizing powers in creative psychological research which are exerted by residual psychologic tension after termination of training analysis may be blocked, if the incompleteness of the training analysis is not confronted *openly* but is covered up. Paradoxically a blatant error in this respect is not likely to stand in the way of future creative efforts towards expanding understanding, but, here as elsewhere, it is a small truth or half truth which is *the greatest enemy of truth*."

"Lying as a symptom (pseudologia fantastica) on the other hand has to be evaluated carefully since variation in the relationship between the narcissistic structures and the patient's ego account for important differences in diagnosis and prognosis."

So it appears we've come full circle. Maybe lying is a diagnostic sign. Know Thyself. Veritas, anyone?

William F. Gallagher '60

Psychiatry: A human discipline

The annual arrival of the Dean's Report gives those of us who have deserted Boston an opportunity to re-visualize the ongoing status of the Medical School. In the latest (1977-78), the dean lamented a lack of representation of the "humanities" in medical school teaching. Surprisingly, he seemed to feel that the only department that had an appropriate responsibility for this area was that of preventive and social medicine.

As one who is concerned with the

humanistic side of medicine, and perhaps blurring that concept with the humanities, it would seem that that department alone does not carry the whole burden of teaching.

There are those who feel that psychiatry is devoted only to the psychopathological ills of mankind. There are others among us, however, who feel that psychiatry is dedicated to an understanding of the totality of the human being; particularly understanding how the emotions and feelings, in which we are constantly bathed, affect the biological course of our life. As Stanley Reiser in his editorial in the *New England Journal* last fall pointed out, we are concerned about the drives, dreams and needs of people who are sick. Psychiatry in its current form has always paid attention to this aspect of the totality of life, as well as to the common psychological phenomena that in everyday parlance "drive men mad."

There is a large department of psychiatry at Harvard Medical School. It would seem that in the course of its teachings many of the relationship problems that Francis Peabody described in 1927 as a basis for medical education at Harvard are presented to the students. While it is true that Henry Adams told us a century ago that history would cease in 1940, those of us who are concerned about the use of history would strongly urge that we pay attention to Francis Peabody as well as to those who, like Stanley Reiser, continue to feel that humanism is a critical part of medical education.

Perhaps I am quibbling about humanities and humanism. Perhaps I am merely resenting the dean's statement about the "turf" of my own field. Turf or no turf, emotions continue to exist. Psychiatry has carved out, as part of its teaching area, those aspects of nature concerned with the feelings of individuals. One would hope that the rectification of the lack of the teaching of humanities in the Medical School would rest not only with the department of preventive medicine (and its possible behavioristic approach to life) but also with the discipline of psychiatry. Hopefully that department is composed of humanistic individuals who can focus on the depths of individual feeling that contribute both to health and illness.

Henry H. Work '37

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